POST-OCCUPANCY EVALUATION ON ENVIRONMENTAL QUALITY IN NEW DEVELOPMENT AREAS: THE CASE OF ERYAMAN

A THESIS SUBMITTED TO
THE DEPARTMENT OF INTERIOR ARCHITECTURE AND ENVIRONMENTAL DESIGN AND THE INSTITUTE OF ECONOMICS AND SOCIAL SCIENCES OF
BİLKENT UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER OF FINE ARTS

ÜMİT DUYAR

AUGUST, 1997

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By

Umut Duyar

September, 1996

I certify that I have read this thesis and that in my opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Fine Arts.

Assist. Prof. Dr. Zuhal Uğusoy (Principal Advisor)

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I certify that I have read this thesis and that in my opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Fine Arts.

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Approved by the Institute of Fine Arts

Prof. Dr. Bülent Özgüç, Director of the Institute of Fine Arts

ABSTRACT

POST-OCCUPANCY EVALUATION ON ENVIRONMENTAL QUALITY IN NEW DEVELOPMENT AREAS: THE CASE OF ERYAMAN

Umut Duyar
M.F.A in Interior Architecture and Environmental Design
Supervisor: Zuhal Ulusoy
September, 1996

In this work, it is aimed to evaluate new development areas by means of four measures: appropriation of space, affordances of environment, allocation of functions and contribution by inhabitants. They are derived from three realms of discussion, which are societal organization, physical environment, and man-environment interaction, after a study on components of built environment and historical evolution of these new development areas. A post-occupancy evaluation study is applied in Eryaman, a Mass Housing District in Ankara. As the result of this study, inadequecies of this kind of settlements are defined and some proposals for pre-planned districts are developed.

Keywords: Post-Occupacy Evaluation, Environmental Quality, New Development Areas, Mass-Housing Districts.

ÖZET

YENİ GELİŞME ALANLARINDA ÇEVRESEL NİTELİĞİN KULLANIM SONRASI DEĞERLENDİRİLMESİ: ERYAMAN ÖRNEĞİ

Umut Duyar
İç Mimari ve Çevre Tasarımı Bölümü
Yüksek Lisans
Tez Yöneticisi: Assist. Prof. Dr. Zuhal Ulusoy

Bu çalışmada, yeni gelişme alanlarının, mekanın sahiplenilmesi, çevrenin sunuları, işlevlerin yerleştirilmesi ve kullanıcıların katkıları gibi kavramlar açısından değerlendirilmesi amaçlanmıştır. Bu kavramlar, sosyal organizasyon, fiziksel çevre, ve insan-çevre ilişkileri gibi üç ana alanın kesişiminde, yapılı çevre ve yeni yerleşim bölgelerinin tarihsel gelişimini gözönünde bulunduran bir çerçeve içinde ele alınmıştır. Ankara'daki Toplu Konut Alanları'ndan biri olan Eryaman'da, kullanım sonrası değerlendirme anketi uygulanmıştır. Çalışmanın sonucunda, bu tip yerleşmelerin yetersizlikleri tanımlanmış ve önceden planlanan konut bölgeleri için bazı öneriler geliştirilmiştir.

Anahtar Sözcükler: Kullanım Sonrası Değerlendirme, Çevresel Nitelik, Yeni Gelişme Alanları, Toplu Konut Alanları.

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1 INTRODUCTION

The topic going to be discussed here is basically the space in new development areas where the life style of modern times has been proposed, as well as the process of the formation of space there, and quality of it in terms of societal organization, physical environment and man-environment interaction. The new development areas of our cities are the results of urban development policies based on the idea of leaving the city and escape from the ill-effects of urbanization. So, these spaces have been shaped according to the functional zoning principles of modern planning on space, in addition to modernization process and changes in socio-economic life in our country.

The idea of new development areas around the city is based on the late 19th century utopias mainly caused by the ill-effects of industrialization. They have considered sanitation, health and quality of life, as

well as creating an original type of life and environment: a new life in new towns. Different from the categorization of New Towns by Thorns (1976), Turkey has experienced the new development process by means of Mass-Housing Districts (MHD), which are mostly dormitory towns without any job opportunities, specialized services and rapid transportation links to the city centre. Therefore, in the Turkish case, the life and the environment provided in MHDs are different from these both in the city and even in other examples of new development areas in other countries, i.e. European new towns, American suburbs, etc. These MHD are the sites of reproduction of a peculiar type of meaning, aesthetic and life.

One of the main problems of big cities in Turkey is the rapid urbanization rate. Cities are suffering overpopulation and high densities due to the migration to urban areas. As a result, there occurs a need for housing and services. This rapid urbanization causes either a rapid change in already built-up areas in the city, which is also a process of changes in building codes to increase density and the loss of open areas at

the immediate surroundings of buildings(Evyapan, G. A., 1981: VII); or new development areas, i.e. Mass-Housing Districts appearing around the city as a solution for satisfying the need for housing. Although providing a housing stock in large numbers is a strategy of housing poor people by means of high ratios of state subsidy, MHD are the sites composed of housing cooperatives of middle income groups. Housing policies after 1980s mentioned by Türel (1989) and Mass-Housing policies (*Konut Sorunu*, 1988: 31-85) mostly proposed a rapid development and a qualitative increase in housing sector by motivating middle income group to own a house. However, in addition to being a shelter, production and consumption good and speculative rent source, housing districts are also tools for the reproduction of social relations and cultural artifacts in the production of urban environment, as defined by Tekeli (1991: 103-108).

The MHDs are residential areas for mostly middle income groups who are celebrating a sterile and well-designed environment to live in. It is also a safe way of living to own a house among the neighbors of a homogeneous

social group. Existence of green areas, a sufficient amount of car parks, accessibility to some facilities to satisfy the basic needs are the main criteria for the inhabitants of such residences to choose these places. The environment is clean and very well-defined in terms of functional separation: houses are placed in the form of clusters without really creating community places inside; it is already determined where the children should play which is again very safe both for them and for the parents; there is also no need of thinking for a parking place; the shopping centers are located on the geometrical centers for neighborhood units, i.e. the proper location of a service. Everything is organized for a small unit for survival of the inhabitants and the whole environment is created by multiplying the same unit within the framework of the model. It is a well functioning and consistent model of providing housing in the contemporary economic system and satisfying the demand of people.

However, the same environment should be evaluated with another perspective considering societal, physical aspects and man-environment interaction to conclude a

definition of a desirable environment for human being. The way of life and facilities provided there, variety, functional organization, realization process of the environment, ability of people to change or modify spaces, and satisfaction of human needs there, etc. are the components of such an evaluation. These three main domain discussing the social life proposed in MHDs, the physical environment and lastly the interaction between the man and the environment include some concepts as listed below.

Table 1.1 Domains related with built environment

A.Societal Organization	B.Physical Environment	C.Man-Environment Interaction
1.publicness and familism	1.variety and monotony	1. Satisfaction of complex human needs
2.degree of specialization	2.zoning/integration of functions	2. territoriality
3.homogeneity/ heterogeneity	3.pre-planned/ accumulated	3. milieu-behavior synomorphy
4.level/type of participation	4. density	4.individuation/ socialization
	5.variety and hierarchy of space	5.meaning
	6. aesthetics	6. level/type of control

There are some observations on space and behaviors in MHDs leading to conduct a research about the spatial organization in new development areas with respect to the concepts mentioned above.

The trend of individualization brings a decrease in the use of open public spaces. Dormitory towns built in the fringes of the cities are the sites of this kind of trend with their pure and well designed but not extensively used public spaces which result in limited social interaction and does not encourage people to create their own life-ground shared with the others. Some specialized services are also lacking there, i.e. people are still closely dependent to the city centre. Activities are mostly family-based; social structure is homogeneous; management of the whole site requires a more complex and institutionalized organization in MHDs.

We can talk about a monotonous environment in terms of visual stimuli in most of the MHDs. It is not possible to observe integration of different functions due to system of functional zoning, as well

as being a pre-planned district which discourages an accumulative process of building. In addition, they are low-density environments both in terms of population and built-up structures. There is a strict distinction between private and public spaces without any hierarchy of privacy that can be experienced in daily life. The order of buildings, tidiness of the immediate surrounding of the apartment, provision of sufficient amount of space for the specific activities are the reasons to name the environment as beautiful. However, affordances of the environment can not satisfy all the human needs, which are classified by Maslow (qtd. by Lang, 1994:155) as survival, safety and security, belonging, esteem, self-actualization, cognitive and aesthetic needs. They are not the places where the people can fulfill their needs of esteem and self-actualization. The reason for being dependent to the city is that there is no cultural and social facilities, neither any place that the inhabitants can appropriate. People own their houses but there is no other territory in the public sphere which can be identified by any social group. Some spatial organizations do not

correspond directly to the behavior settings of the inhabitants. There are car parks where children play; cars are parked along the streets; play-grounds are empty because they are designed for only a limited age group of children; the shopping centre is almost vacant but there are small kiosks which are commonly used for daily shopping. There is no open public place to experience both individuation and socialization. People do not have the chance to personalize the space and change it into place. The meaning transferred by the built-up structure does not vary due to the monotonous repetition of same formal language and people are not able to express any information about their status, life style, ethnicity etc.

In the second chapter of the study, historical evolution of the new development types beginning in pre-industrial ages are mentioned. 19th century utopias are introduced as the basis on which the ideas of new towns have been developed. Modern Movement is defined not only as a proposal to overcome the ill-effects of industrialization and overpopulation in

urban areas, but also as a product of rational thought creating a new order and superiority upon environment. In addition, the Turkish experience in the 19th and early 20th centuries, i.e. the modernization project is mentioned. Especially, mass housing production is stated as one of the most important housing provision types in last decade.

In the third chapter, components of built environment are discussed under the headings of societal organization, physical environment and man-environment interaction. As a result, some sub-concepts are derived among these related topics, which can be part of a better/desirable/livable environment.

In the fourth chapter, results of the case study on Eryaman Mass Housing District are declared. By means of this research, spatial organization and the way of life proposed on the public spaces in Mass Housing Districts are evaluated again with respect to the criteria mentioned earlier.

Lastly, in the sixth chapter, a conclusion came out both from the case study and literature review on new development areas is stated, as well as some aspects of a livable environment.

2 HISTORICAL EVOLUTION

Altman and Chemers (1989: 42) noted that people in different cultures and throughout history have held different perspectives about their relation to the natural environment, according to which they have shaped their environments. Sometimes people felt they are superior to nature, sometimes subjugated to nature or a part of it. All these explanations were in a complex fabric of beliefs and values. In addition, social and economic structures were also effective in spatial organization due to their impact on conceptualization of space and city. Flanagan (1990) had grouped theories about cities under two headings depending whether they are based on cultural or structural explanations.

The city was conceptualized sometimes as a living organism, a centre of economic activities, site for

agglomerations of some services and facilities, or as a spectacle. So, each epoch in the history has brought its own order and spatial organization.

Despite all these different perspectives, there are commonalities and continuity in the history of building/shaping the environment. There are parallels as Rykwert (1976: 163-187) mentioned, the rites of foundation of settlements in different cultures, the desire for wholeness, and explanations of cosmos. Lang (1994: 10) also argues that there are human needs valid for all of us and the design process should include the whole set of those needs, within a broader sense of function.

There was a critical point in the history which can be called secularization of space as the result of the enlightenment. Industrial revolution and the emergence of industrial cities at the end of the 18th century are the products of rational man who was born at the enlightenment. The man had recognized his ability to change the environment by means of rational thought and has created new orders as the tools for marking the space in that the man has superiority upon his environment.

Before modernity, i.e. act of production by rational thought, the space was shaped according to the rites, myths and rituals; or building activity was an interaction between man and nature. Acts of the man were changing the nature and also were ruled by it. However, later on, size and scale of production have changed. Human settlements became sites of production in masses; and houses were also produced in large numbers; working and living places were separated; new transportation channels for the masses living in the fringes of the cities were built. The house changed into housing stock; the street was replaced by thoroughfares for motor vehicles; shopping malls were introduced as meeting places.

Whether it is sacred or secular, throughout the history of built environment, the basic attempts of people have been always to fulfill the human needs, more basically, for physical and mental survival.

2.1 Pre-Industrial Cities

First cities were built when the human kind had extended itself and had got beyond the struggle for existence. Broadbent (1990: 3-5) introduced four features of early cities. These are the separation of

the built up area from the surrounding country side, possibly by defensive walls; the development of irrigation systems for intensive agriculture; the development of power structures which control the urban life, like kings and priests; and the development of craftsmen both to serve the needs of urban population and as a base for trade.

Broadbent also mentioned two ways in which cities have grown. Alexander, (qtd. in Broadbent, 1990: 5), described one of them as the natural way tending towards informality. People simply start building. On the other hand, according to Stanislawski (qtd. in Broadbent, 1990: 5) there is the artificial way, in which a master plan is prepared; streets, squares and urban blocks are placed in an order.

Unlike the settlements built in the 20th century, the idea behind a town in pre-industrial ages had been mostly mystification of space; appropriating it by means of strict boundaries and passages; marking it by holy symbols. For example, the foundation of the city of Rome is based on the rite of Romulus and Remus. The economic and hygienic factors were always seen by the ancients in mythical and ritual terms (Rykwert, 1976: 27-31). Every Roman space was defined

by a boundary that took the form not of an abstract line clearly marking off different territories, but rather of an intermediate zone at which people had to perform rites of passage (Dupont, 1992). There were two Gods called Terminus; boundaries, god of separation and proximity and Janus; gates, transit between different kinds of spaces. The space was mystified. Boundaries were highly important and passages between spaces were ritualized.

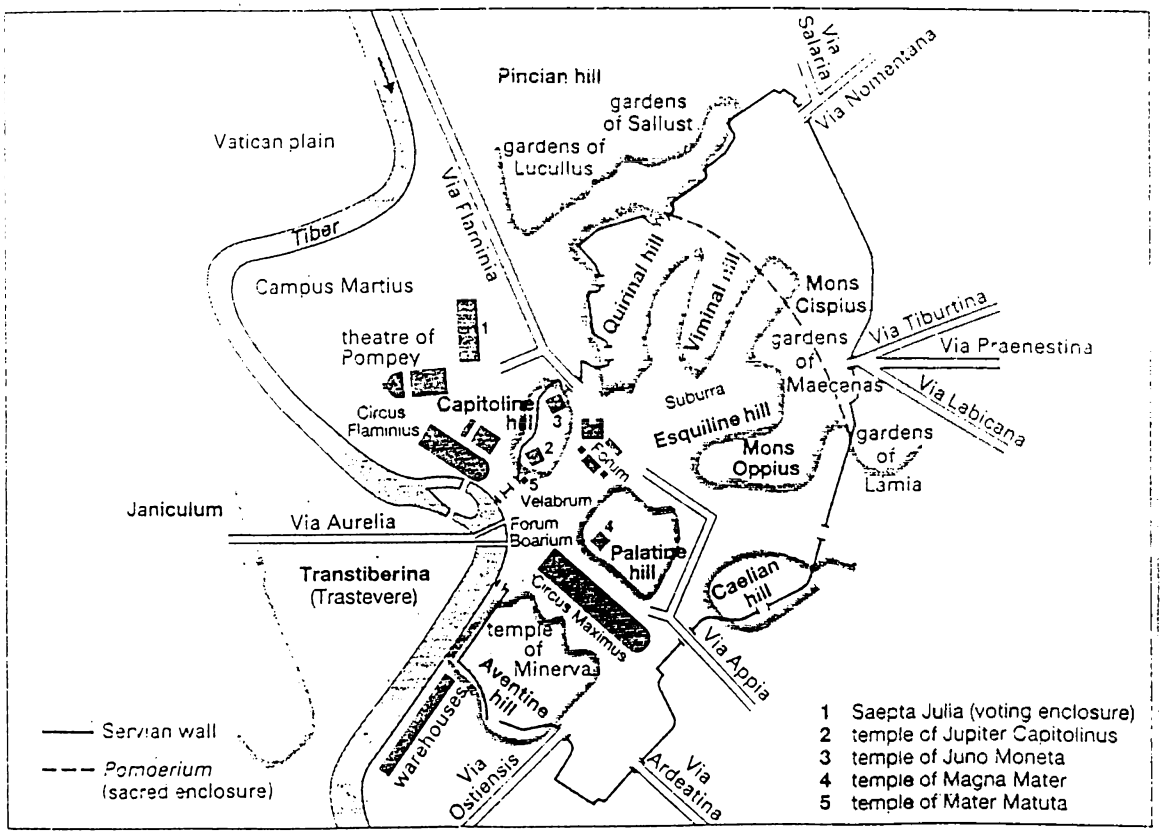

Figure 2.1 Rome at the end of Republic, F. Dupont, *Daily Life in Ancient Rome* (Oxford: Blackwell 1993) 77.

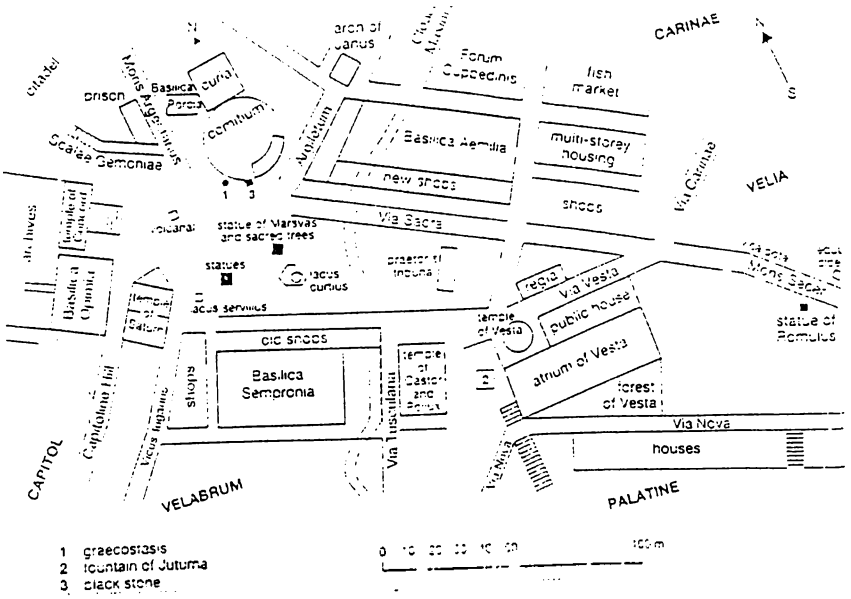

Figure 2.2 The Roman Forum, F. Dupont, *Daily Life in Ancient Rome* (Oxford: Blackwell 1993) 138.

Later, in the early medieval town, feudal system was shaping the order in that it was dominated by the church or monastery and the castle of the lord. The castle was surrounded by its own walls. Distinction between town and the country was sharp. However, there was little distinction among classes. Spaces were containing different functions at the same time; for example working and living activities were together. The entire town was treated with a structural logic that characterized architectural treatment of the Romanesque and early Gothic (Gallion and Eisner, 1986: 35-39). Although it seems that the medieval cities were chaotic, they were shaped by several elements joined together at different times.

The streets and the squares were the sites for collective and random occasions where individuation and socialization took place. They hosted both vehicles and pedestrians, recreational activities, trade and other social meetings. The land was quite densely built. Public and private spaces were merged within the other. Facades were surfaces gifted to the street, which is the public space (Benevolo, 1995:60-63).

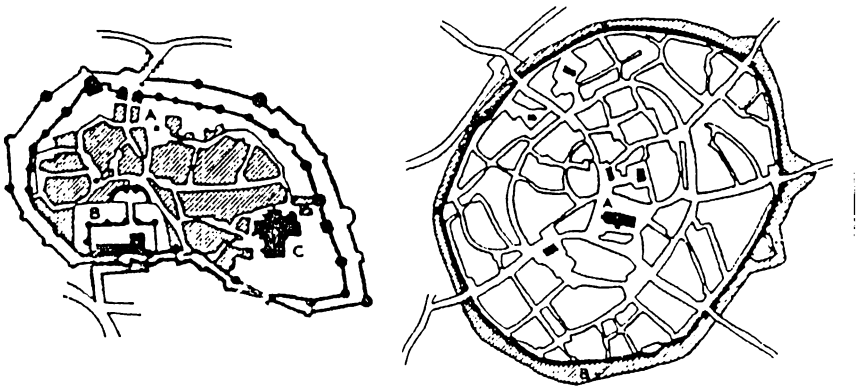

Figure 2.3 General layout of medieval cities, A.Gallion and S. Eisner, *The Urban Pattern: City Planning and Design* (New York: Van Nostrand Reinhold Company, 1986) 36.

In the era of Renaissance and Baroque, the noble families of Florence, Venice, Rome and Lombardy; the Medicis, Bergios and Sforzas built for themselves new palaces, shaping the cities. The basic form did not change but the structure was decorated with facades made up of classic elements. Formal plazas were built within the structure of the medieval town.

Monumental character of the classical period was used in the city. Axiality and symmetry were important (Gallion and Eisner, 1986: 42-44). Physical features of classical period were used by the noble families as the symbol of power which was also a way of marking the space. Therefore books on architecture were written as glorification of the architecture of antiquity by Leon Battista Alberti and Andrea Palladio. Advances in mathematics, engineering and aesthetics were practiced in architecture.

2.2 Conceptualization of Early Cities: (Traditional) Settlement Patterns in Anatolia Before 19th Century

Tekeli has divided the history of the settlement pattern in Anatolia into 5 periods (1982a: 11): 16th century classical Ottoman period, 17th and 18th centuries that come out with decreasing power of central government, impact of western colonialism in 19th century, the era between the War of Independence and World War II, and lastly, the rapid urbanization period after the World War II. He mostly emphasized the transformation period in the 19th century from a traditional to a modern society (26-40), including

the first years of the Turkish Republic when the idea was to create national bourgeoisie, and encourage urbanization. Thus, the emergence of bourgeoisie was a government policy in Turkey.

In addition to these well-defined periods of settlement patterns in Anatolia, the era after 1980s should also be mentioned because of new urban development policies and various implementations experienced during this period.

Aktüre also has two studies on Anatolian Cities. One of them is about examples of 17th century towns studied within a structuralist perspective including an analysis of a set of dynamic relationships shaping cities (1975: 101). She states that both the rigid social structure and social organization in the 17th century were reflected on physical development and social life in Ottoman cities. There was almost no change in production and transportation technology and no social or occupational mobility in the cities. After mid-19th century the spatial structure of

Anatolian-Ottoman city has changed and reached a new stage due to the changes in regional relationships.

The other study by Aktüre is an analysis of demographic and functional structure of Anatolian cities (Aktüre, 1978). She mentions two different models, pre-industrial and Islamic city, for the settlement pattern in this period.

Yerasimos has also discussed Islamic city stating that it has been shaped according to the Law of Islam whereas western cities were the results of Roman Law(1996: 9-13). He argues that there is no public space in Islamic city that is similar to that in a western city. There are spaces shared by a community in the Islamic city differently from the public places where only the public benefit is valid.

In Roman Law there was a strict boundary between private and public realms; i.e. private and public properties. On the other hand, there was another concept called "Fina" which is a common space on streets shared by inhabitants and the right of use on

the space increasing while getting closer to their own properties. This provided a hierarchy between private and public spaces. Community rights on the space were not the same everywhere. He states, therefore, that the cul-de-sacs and narrow streets are not only the results of climatic conditions but also products of a privatization process of streets that are shared community places (1996: 13).

Yerasimos (1996: 17) argues that the Islamic city was shaped by non-institutionalized relations between the central authority and the community, whereas in western cities the institutionalized agreements, such as protection of private properties and public benefit, were the basic elements shaping the city. Therefore, Ottomans tried to create these kinds of institutionalized relations and western urbanized spaces. The main reasons mentioned by Yerasimos (1996: 2-4) of westernization in the last years of Ottoman Empire were to establish again a powerful central authority and to have close contact to western world by importing the technological innovations and some new cultural values. As a

result, westernization period in Anatolia has began and the most visible impacts were in urban areas.

2.3 Modern Movement

Modernism, on the other hand, has brought discontinuity in the flow of the history, in addition to decontextualization and reflexivity as Giddens has defined (qtd.. in Bilgin, 1996: 472). Discontinuity points that there is no longer a relationship between the new and the past. It interrupts the continuity and accumulation on the space. Decontextualization, as another impact of modernization, underlines the tendency to lose the sense of belonging to a particular location. Any kind of relation, institution or object can be exported to any other place. Lastly, reflexivity indicates that spontaneity, directness and naturalness are replaced by self-consciousness. Therefore, the idea behind modernity also introduced living spaces placed on empty areas, without being products of spatial and historical accumulation, rather produced by means of rational decision processes.

2.3.1 Late 19th Century Utopias

Lang (1994: 44) introduces three major urban design approaches in the 20th century: two of them are the Garden City and International Style, which are two branches of Modern Movement. He also states that Garden City and International Movement are called the Empiricists or Regressive Utopians, and the Rationalists or Progressive Utopians respectively.

The approach of the European community experienced at 18th century is resulted in the Industrial Revolution. Industrialization had also some ill-effects, which are overpopulation of cities due to the demand for labor, the consequent lack of housing stock, and low quality living conditions, sanitation problems, etc., as well as being the motor of growth. The attempt to overcome these ill-effects of industrialization was the motivation for the proposals of late 19th century utopias. Due to the urban congestion and rural depopulation caused by the Industrial Revolution, they tended not only to describe the physical characteristics of an ideal urban form, but also to define an economic, political and philosophical basis for the community. They were widely applicable in nature, therefore diagrams were

proposed which are not tied to a geographical location (Calthorpe, 1986: 189-205).

Choay (qtd. in Günay, 1988: 25) proposes two models for new forms of urbanization, which are the progressist and culturalist ones. Progressist models look to the future and are inspired by a vision of social progress. On the other hand, culturalist ones are nostalgic and proposed by the vision of a cultural community. Therefore, Günay considers the socialist utopists in the first half of 19th century as progressist (1988: 25-27), since these models consisted of self-sufficient settlement units for workers located in the country and would be shaped by their necessities, like those proposed by Fourier and Owen (Calthorpe, 1986: 192). Günay also states that the Garden City of Ebenezer Howard was originated from progressivist thinking but resulted in culturalist form.

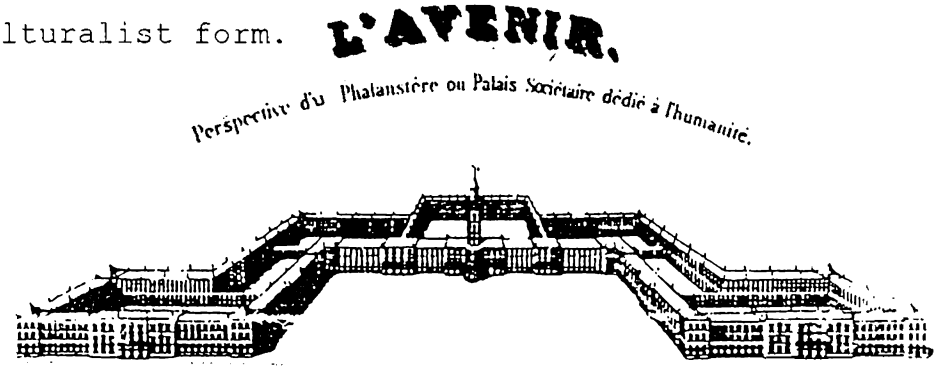

Figure 2.4 Francois Frourier's proposal, P. Calthorpe,"A short History of 20th century New Towns", *Sustainable Communities: A New Design Synthesis for Cities, Suburbs and Towns* (San Francisco: Sierra Club Books, 1986)192.

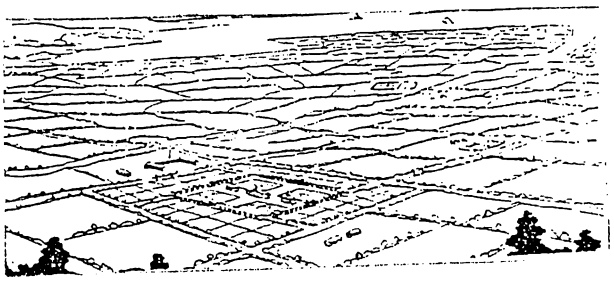

Figure 2.5 Robert Owens' villages, P. Calthorpe,"A short History of 20th century New Towns", *Sustainable Communities: A New Design Synthesis for Cities, Suburbs and Towns* (San Francisco: Sierra Club Books, 1986) 193.

Fourier proposed reorganizing society into 'phalanges' housing 1600 people. These are self sufficient towns manifesting socialism in shared ownership of property. Robert Owens' model provided better working conditions, in villages of almost 1200 people accommodated around one basic industry (Calthorpe, 1986: 192, 193). His proposal was composed of houses enclosing a common open space in the middle of agricultural land; i.e. empty space. These proposals were huge, alienating structures. Although they were based on the idea of community, with their strict geometrical forms, they could not create communal/public spaces, variety and richness in terms of spatial quality. On the other hand, Howard' s proposal was diagrammed as a circle with green belt of agricultural land around and rail linkages to other new towns. The main park in the centre contained, very interestingly, a glass arcade to house the shopping area. Calthorpe (1986:195)

calls it as, probably, the earliest proposal for a shopping mall.

2.3.2 Garden City by Ebenezer Howard

Ebenezer Howard had introduced a new kind of city development without widening the dormitory areas, but with decentralizing all the functions of cities. He rejected the transitional form of the suburb, and sought a stable marriage between the city and the country (Mumford, 1961: 515-517). Mumford also added that Howard re-introduced into city planning the ancient Greek concept of a natural limit to the growth of any organism or organization. His proposal was organized to contain all the essential functions of an urban community, business, industry, administration, education with both private gardens and public parks. Principle of establishing permanent greenbelts of agricultural land around the cities was also a major contribution by Howard. Rejecting the pattern of suburb, he had integrated industry into the settlement, so there would be a mixed population and variety in terms of social life. Fishman (1982: 8)also states that Howard's contribution was a plan for moderate decentralization and cooperative

socialism, which would be a compact, efficient, healthful and beautiful settlement.

The whole city was composed of various neighborhoods with two kinds of centres; the neighborhood centre and the civic centre. Single family house within a garden is the basic unit of the neighborhoods. Main buildings such as schools, libraries, meeting halls and religious buildings are located along the main boulevards. Civic centre serves as the site for leisure activities, which is mainly shopping in the Crystal Palace, and other facilities based on high values of the community, like culture, philantrophy, health and mutual cooperation (Fishman, 1982: 43, 44). Broadbent (1990: 124) states that the major components of the Garden City would be segregated; they were located on the concentric rings and there were greenbelts in between.

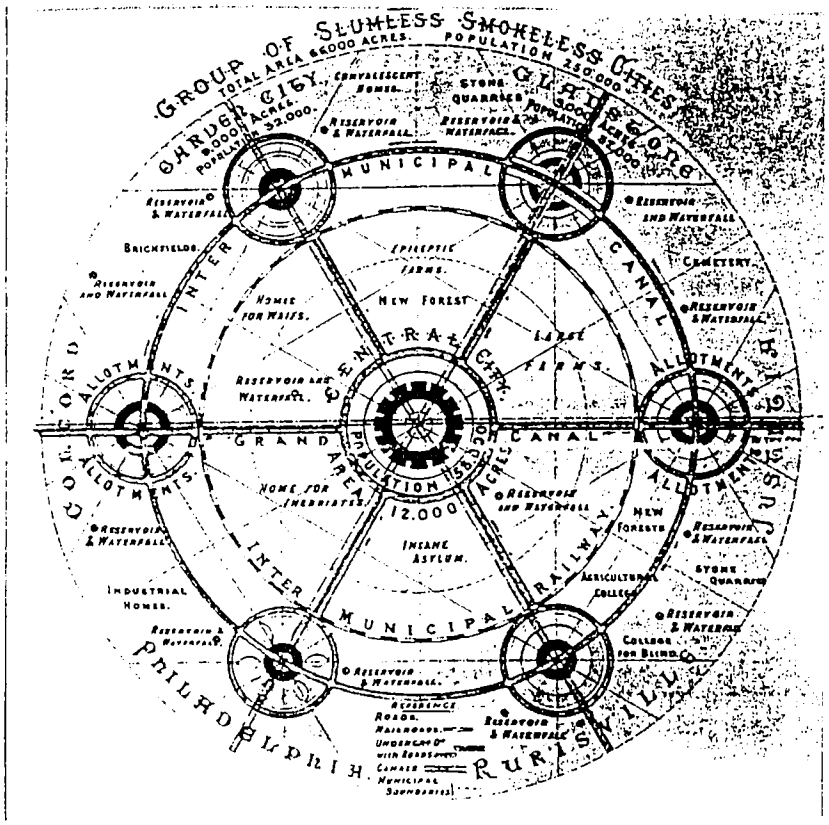

Figure 2.6 Howard's concept of social city, *D. Hardy, From Garden Cities to New Towns: Campaigning for Town and Country Planning* (London: E and FN Spon, 1991) 23.

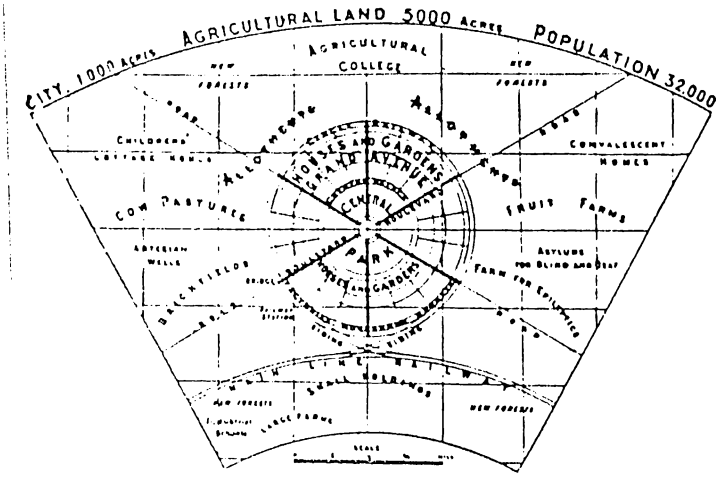

Figure 2.7 Diagram of the Garden City, D. Hardy, *From Garden Cities to New Towns: Campaigning for Town and Country Planning* (London: E and FN Spon, 1991) 21.

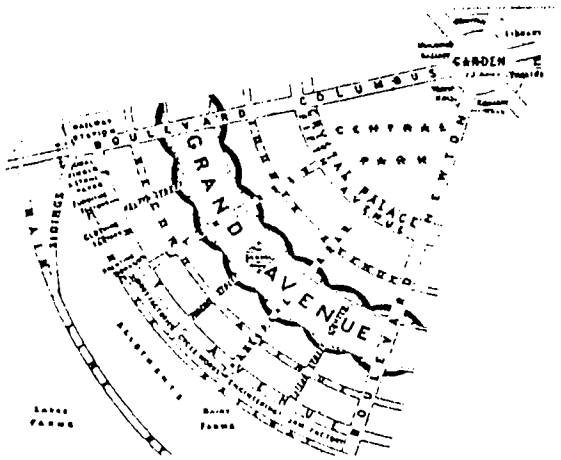

Figure 2.8 A Section from the Garden City, D. Hardy, *From Garden Cities to New Towns: Campaigning for Town and Country Planning* (London: E and FN Spon, 1991) 21.

His diagram reminds a baroque city with its boulevards and squares, however this scheme has been modified when put into practice (Fishman, 1982: 45).

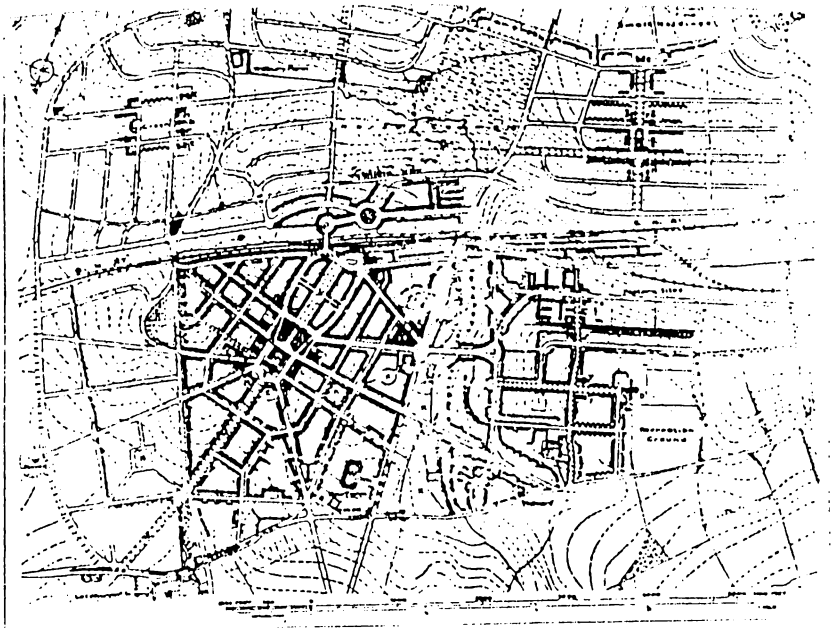

Figure 2.9 Plan produced by Barry Parker and Raymond Unwin for the first of Howard's Garden City, Letchword, in 1902, P. Calthorpe,"A short History of 20th century New Towns", *Sustainable Communities: A New Design Synthesis for Cities, Suburbs and Towns* (San Francisco: Sierra Club Books, 1986) 196.

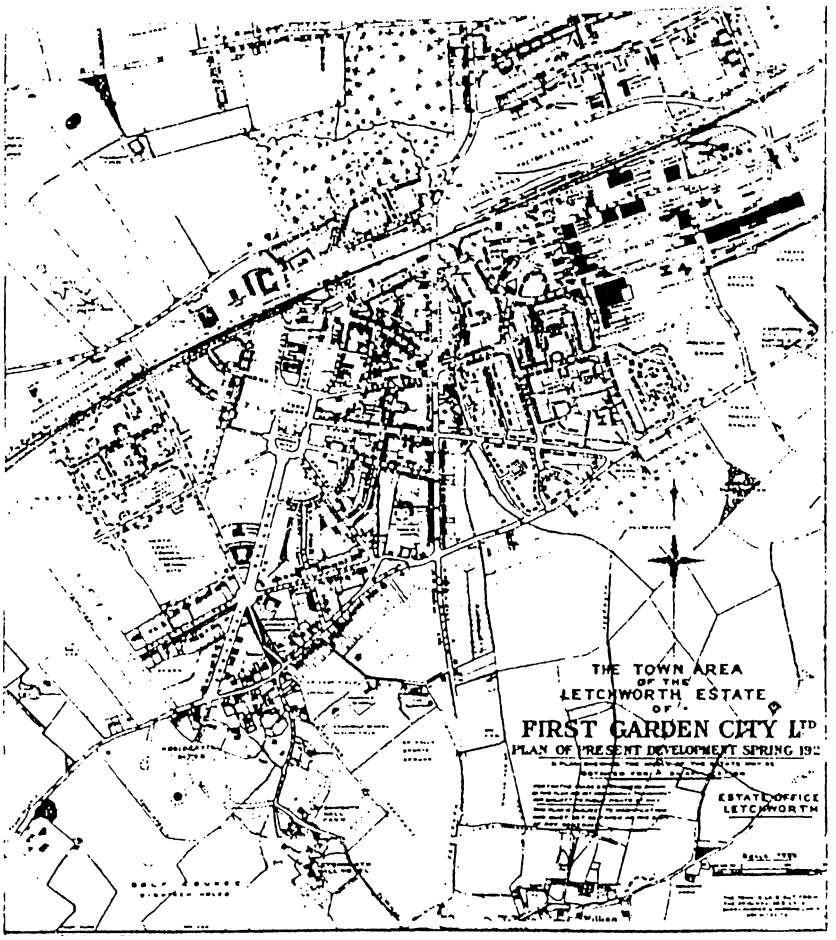

Figure 2.10 In 1924 Letchworth; the plan has changed and shifted a little, P. Calthorpe,"A short History of 20th century New Towns", *Sustainable Communities: A New Design Synthesis for Cities, Suburbs and Towns* (San Francisco: Sierra Club Books, 1986) 197.

In 1889, the Association of Garden Cities was founded to promote Howard's ideas and to initiate the first garden city. Hardy (1991: 310, 311) argues that the Garden City Association had a key role in helping to shape the planning system in the first half of this century. It was the source of influence on the modern

planning thought and practice, both by means of the idea and its implementations: Letchworth in 1904 and Welwyn in 1924.

In addition, Ward (1992: 10-12) states that the satellite town idea was an intermediate stage between the Garden City and New Town, which dominated garden city thinking between the two World Wars. It was mainly shaped by the approaches to planning, especially the regionalist approach by Patrick Geddes before the First World War and by means of Planning Practice by Patrick Abercrombie and others during 1920s.

2.3.3 Suburbia

Broadbent (1990: 348) argues that the suburb is different than the garden city in that it depends on the city for everything, apart from a place to sleep.

> The word means literally "beyond the city", and thus can refer to any kind of settlement at the periphery of a large city...Though physically separated from the urban core, the suburb nevertheless depends on it economically for the jobs that support its residents. It is also culturally dependent on the core for the major

> institutions of urban life: professional offices, department stores and other specialized shops, hospitals, theaters, and the like...The suburb must be large enough and homogeneous enough to form a distinctive low density environment defined by the primacy of the single family house set in the greenery of an open, park like setting. (Fishman, 1987:5)

The evolution of suburban communities is mentioned by Baldassare (1992: 488). He states that whereas early suburban settlements were dependent upon societal trends like industrialization, immigration, income growth and transportation technology, later severity of urban crisis and governmental policies were in favor of suburbanization. It is in the context of major economic restructuring and the movements of large manufacturers, today.

Urban patterns created in these new development areas are based on low level ordered environmental organization, which is typical of modern urbanism causing monotony. The reason of this current failure of urban design is stated by Lozano (1990: 283) as the early visions of the modern movement. The lack of visual complexity is named to be typical of the movement characterized by narrowly defined

functionalism and obsession with purism and clarity. He also argues that those monotonous environments restrict behavioral opportunities (1990: 286). The common characteristic of these planned units and suburban developments is the repetitive use of a design solution resulting in monotony despite the intention to avoid it (Lozano, 1990:286). Their physical features appear frequently such as cluster housing, grade separation of different types of traffic, juxtaposition of buildings of various types and certain mixtures of land uses which are usually separated in conventional zoning practice (Alonso, 1970: 37-55).

This physical structure is based on the neighborhood idea by Clarence Perry, which is one of the several important American contributions to the Garden City Movement as argued by Ward (1992: 11). Perry proposed that cities should be divided into residential areas about 160 acres around a centre with an elementary school, and three of these units constitute together a bigger unit of a high-school. Open recreational spaces and hierarchy among the roads are the additional proposals.

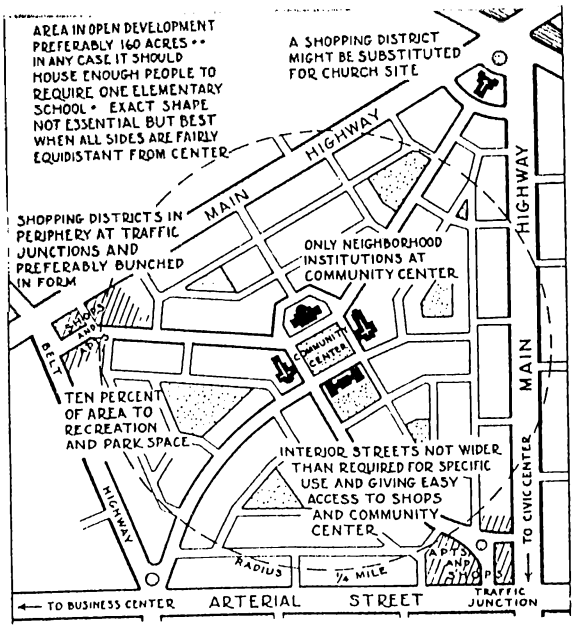

Figure 2.11 Clarence Perry's neighborhood unit, S.V. Ward, "The Garden City Introduced". *The Garden City: Past, Present and Future* (London: 1992) 11.

Another contribution was made in Radburn by separating pedestrians and vehicles. Radburn proposed culs-de-sac access for cars on one side of the dwellings and vehicle-free pathways for pedestrians on the other side (Ward, 1992. 12). Lang (1994: 49) argues that it is a model of a well-ordered environment based on a number of middle-class British and American values, such as individuality, communality, automobile ownership, safety, efficiency, etc.

Figure 2.12 Radburn, New Jersey Plan, J. Lang, *Urban Design: The American Experience*.(New York: Van Nostrand Reinhold, 1994) 48.

In addition to this physical structure, Choldin (1985: 387) defines the social characteristics of those new development areas by stating that the suburban way of life is based on familism, a term introduced by him, conformity and homogeneity. American suburbs exhibit a sense of placelessness. Several early empirical studies about the suburban social life in America are discussed by Choldin (1985: 388-393). These studies can be summarized by stating that a suburban way of life exists which is not imposed directly. However, built environment permits the inhabitants to express their preferred familistic life style neglecting the needs of teenagers and women and avoiding the variety of residents (Choldin, 1985: 403, 404).

2.3.4 New Towns

The New Towns had been a way of occupying and controlling new terrain, like pre-planned Greek cities, Roman Garrison and the French Bastille. However, as a result of the Industrial Revolution, urban congestion and rural depopulation has reached its crises level and the purpose of new towns shifted from means of occupation to response to industrialization and its ill-effects (Calthorpe, 1986:189).

There are various types of planned developments in different countries, which are garden cities, new towns, satellite towns, dormitory towns, agrindus, urban villages, rural towns, etc., as listed by Kartal (1980:5). He defined them by means of their basic features and alterations (Kartal, 1980:6-8). The basic characteristics are population constraints, comprehensive planning, structural unity and continuity, institutional organizations combining the stages of planning, implementation and governing, provision of all social and technical necessary infrastructure. On the other hand location, site, size of the area and population, integration of housing and industry and transportation flow are the

variations among them. He also introduces some criteria in order to classify the New Towns, which are location, site, housing-industry integration and purpose of building (Kartal, 1980:8-10).

Four reasons of the emergence of the new towns were set by Thorns(1976: 64-72). Those are disenchantment with the industrial city; the role of certain influential individuals, like Ebenezer Howard; the role of pressure group activities; and that of political action. Anti-urbanism, rejection of the city and impossibility of solving city's problems within its own framework resulted in the proposals of contemporary planning for the planned dispersion of population and control of further urban growth. Therefore, these planning policies are linked to particular social values generated during the 18th and 19th centuries.

The first of the key-individuals, Ebenezer Howard was succeeded by Sir Fredric Osborn who also played a key role in the growth of the acceptability of the idea of new towns. Lewis Mumford is another person who provided the intellectual rationale for the new town movement. Clarence Stein is a planner and architect who is responsible for early new towns in

America. He also influenced another designer: Clarence Perry.

Referring to the pressure group activities, Garden Cities Association founded by Howard in 1889 should be mentioned. It became the Garden Cities and Town Planning Association in 1909 and has been named the Town and Country Planning Association since 1941. Other garden city associations were established in France, Germany, The Netherlands, Italy and the USA.

Political actions had also important roles in the development of new towns. The report of the Barlow Commission in 1941 advocated the creation of a new Ministry of Town and Country Planning, in England. It was followed by the report of the New Towns Commission which laid down the guidelines for the first set of towns established under the New Towns Act of 1946. New Towns in Britain have had a separate legal and administrative framework from other urban developments.

Thorns classifies different patterns of new town policies outside Britain into three groups (1976: 90-93). The first group is adopting an identical approach to Britain, that is, introducing limitation

of city size and the decentralization of employment into self-sufficient sub-centres. The second group includes those developed within the framework of explicit regional growth policies in order to produce more orderly development of the metropolis around transport systems providing good and rapid access for the centre of employment. Thirdly, there are new town developments which are predominantly outside the public sphere and not a part of urban or regional growth policy, like the American case. As examples of second group of new town policies, satellite towns have been developed in France, Germany, Scandinavia and later in Japan which were not necessarily balanced in employment and working population. They have been built to produce more orderly development providing good and rapid access to the central business district which is the centre of employment.

Alonso (1970: 37-55) grouped the principle objectives for new towns into three categories; macro--economic, social, production and physical purposes. Providing employment opportunities within the new towns has the aims to recapture the increase in land values in development areas by means of public ownership as well as minimizing the cost of travel , which is mostly not valid and has an opposite effect.

Some purposes of new towns can be classified under the heading of mental health. It is argued that the new towns, being smaller, simpler and as the locus of home, school, job, shops, recreation and social and civic activities would afford deep and enduring relationships and the possibility of a comprehensive environment in which the individual may participate and, to some extent, control it. However, Alonso (1970: 46) says that the traditional dichotomy between alienating metropolis and the cohesive small city is a gross oversimplification. Participation in new towns is limited due to the struggle of developers to keep control of nature and the timing of new development according to the physical and financial plans. Everything is planned in details. It is not easy to achieve the measure of local autonomy. Alonso does not agree with the physical and mental health directly associated with physical density of population rather than with life-style. Social balance, which is a traditional objective of new town theorists, could not be achieved by containing substantial proportions of diverse social, economic and ethnic groups. Another argument for new towns is to increase the range of choice of living environments. Providing cheap-land and reduction of

production costs are purposes related to production stage. Physical features appear frequently such as cluster housing, grade separation of different types of traffic, juxtaposition of buildings of various types and certain mixtures of land-uses which are usually separated in conventional zoning practice.

The new town movement includes both moral and social aspects; it aims to improve urban condition as response to industrialization. Its origins are in social reform and its objectives are to restructure urban form and life to achieve a more perfect harmony among nature, technology and economic and social classes. Human scale of settlements, social and economic balance, harmony of urban development with nature and social betterment through a new system of development are the features of the proposed life in new towns (Hanson, 1978: 19-25). However, he also stated that especially in the first generation of the new town growth -first 15 to 20 years- there is no civic history, no set of lasting voluntary institutions to bind the news town together. They are not isolated and independent islands and there is a persistent change in the society.

New towns may have different meanings for their residents. They can represent an escape from the rush of the city, or a pioneering step toward a new way of life, freedom from automobile. They can offer a chance to get away from the rigid pressure of small town and stress of central city. They could also provide citizens an opportunity to affect decision making process related to development. But they are not ideal havens. There are adjustment problems in transition to new town living from a previous environment. One of the most complex and sensitive issues is that of socio-economic integration (Campbell, 1976:25-27).

Garden City, New Towns, and Suburbs are all new development models with some variations. New Town is a more general term referring to all types new development models. The differences among them are based on the idea behind their foundations and their relations to the main/central city. Garden City is the original idea of building a settlement in the fringes of the city combining advantages of both city and country. Suburbs are, on the other hand, only dormitory towns which are completely dependent on the city for all facilities.

They are all sites of modern planning in that they are mostly based on the idea of neighborhood units, functional zoning, buildings in vast open spaces with a mechanical order, traffic segregation, etc.

Figure 2.13 Escape to suburbs, W. Owen, *Accessible City* (Washington D.C.: The Brooking Institution, 1972) 13.

2.4 Modernization Period in Anatolia during 19th and Early 20th Centuries

Period of westernization experienced since the end of Ottoman Empire and particularly in the early periods of Turkish Republic has always been a governmental policy (Belge, 1983: 261). As its implementation in cultural sphere a westernized life-style was established. Consequently, a new city of national bourgeoisie -Ankara- as the site of those implementations was built.

Jansen's plan was an economic, simple, operational and modern development proposal for the capital city of Turkey (Tekeli and İlkin, 1984: 22). However, in the city, there was a scarcity in housing stock, both in quantitative and qualitative terms. It has been recognized that housing problem should have been dealt in a more organized way due to some early unsuccessful attempts to solve the problem. Therefore, some institutions providing credits were established, like *Emlak ve Eytam Bankası*. In addition, some governmental institutions have built

houses in order to solve the housing problem of their workers (Sey, 1983: 2376, 2377).

In this way, there occurred a local initiative, very similar to the Garden City Movement by Ebenezer Howard, in order to solve the housing problem in Ankara (Tekeli and İlkin, 1984). Nusret Uzgören, who was a bureaucrat, and a group of people have been organized to establish Bahçelievler Housing Cooperative. The story of this organization is very interesting in that the idea is the product of a local initiative which while trying to solve their problems also created a new urban life style for the bureaucrats in the capital city. However, it is later mentioned by Özüekren (1996: 357) that there was not any communal facility where the members of the cooperative could maintain the communication and cooperation, contrary to the western examples.

They used different media in order to inform people about their ideas and the intent of establishing a better neighborhood. For example, they published a questionnaire about desirable living places in a

newspaper, prepared posters, etc. The organization had the duty of selecting the site and finding financial support for the project, as well as carrying out the production process and management of the settlement until the shareholders get their properties. Jansen prepared the site plan and the building projects. His design idea was keeping the urban image by building mostly row houses, and creating possibility for integration with nature by means of gardens (Tekeli and İlkin, 1984: 66-74).

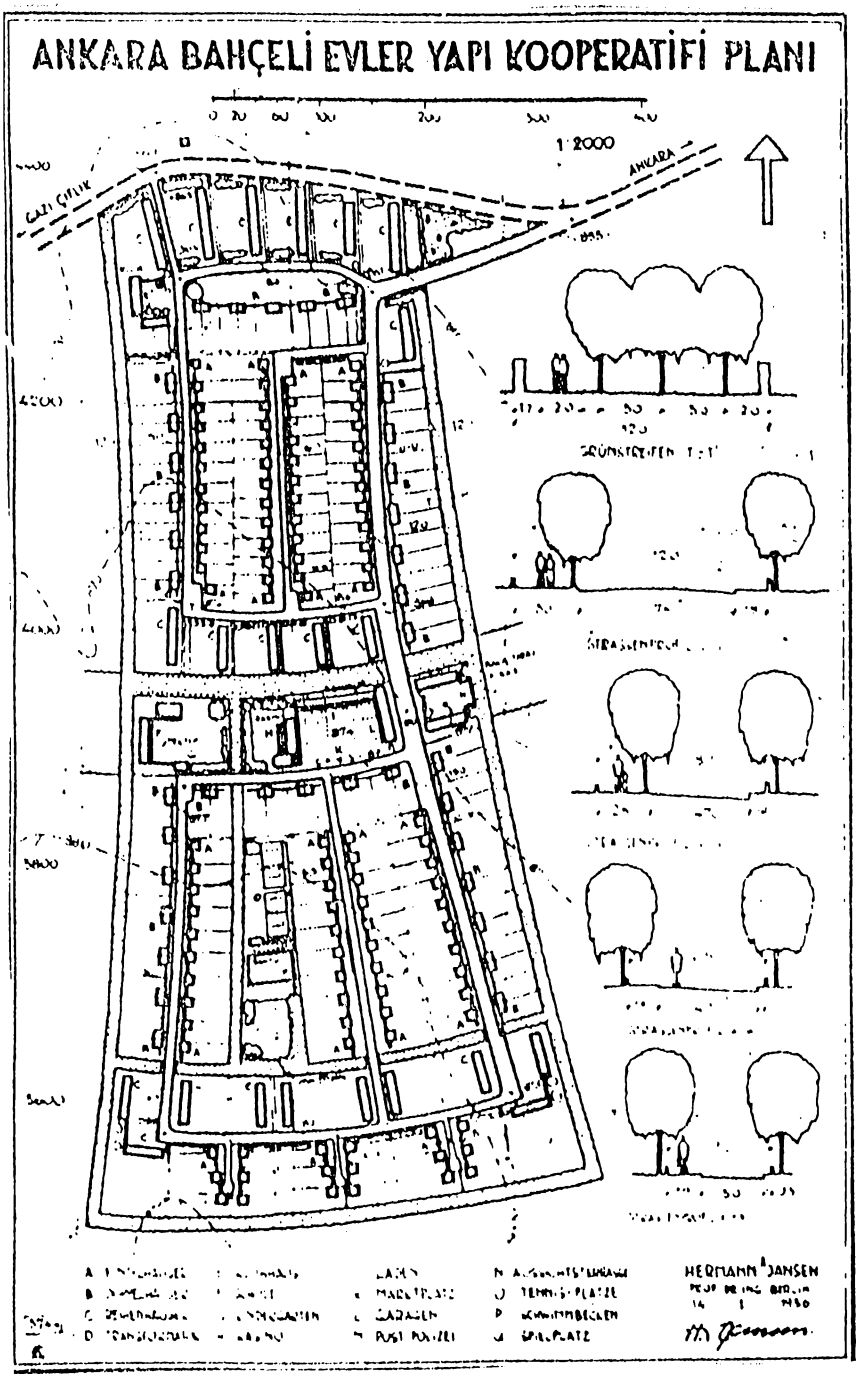

Figure 2.14 Site plan prepared by Jansen for Bahçelievler Housing Cooperative, İ. Tekeli and S. İlkin, *Bahçelievlerin Öyküsü: Bir Batı Kurumunun Yeniden Yorumlanması* (Ankara: Kent-Koop, 1984) 61.

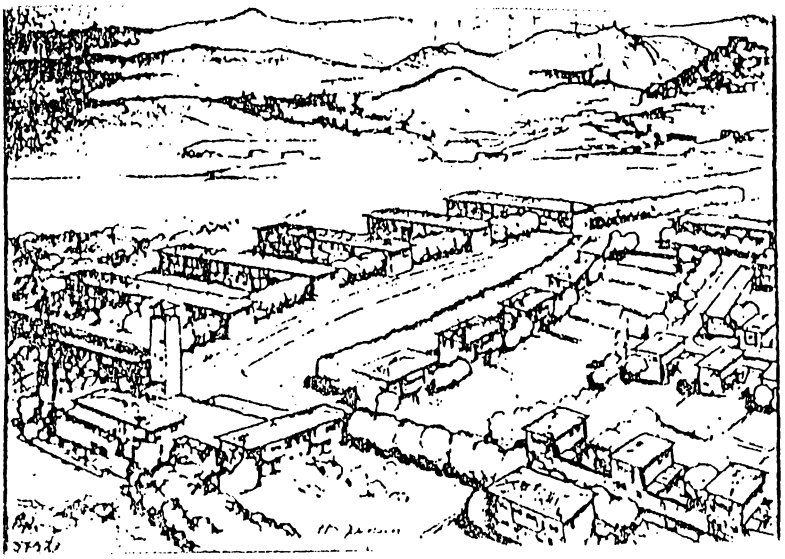

Figure 2.15 Sketches of site, İ. Tekeli and S. İlkin, *Bahçelievlerin Öyküsü: Bir Batı Kurumunun Yeniden Yorumlanması* (Ankara: Kent-Koop, 1984) 63.

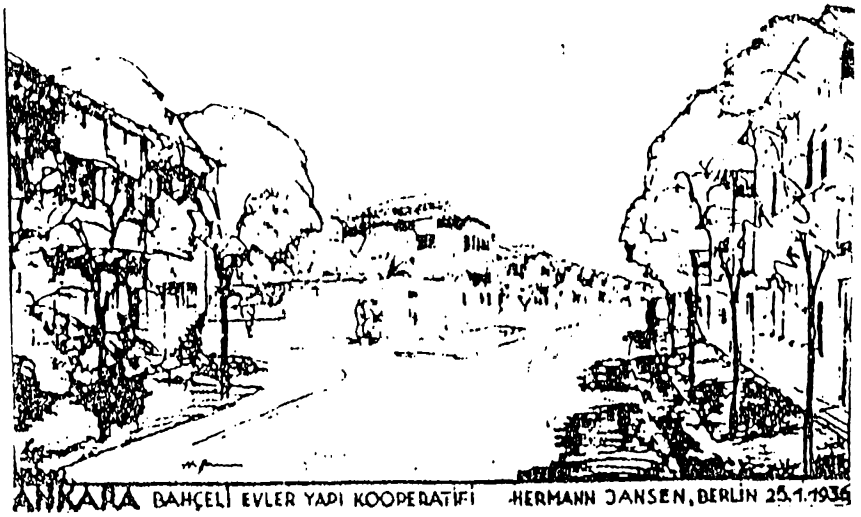

Figure 2.16 Sketches of street scene, İ. Tekeli and S. İlkin, *Bahçelievlerin Öyküsü: Bir Batı Kurumunun Yeniden Yorumlanması* (Ankara: Kent-Koop, 1984) 63.

Shareholders had the chance to be integrated in all stages of the project. Proposals by Jansen were also discussed and some of them had been changed (Tekeli and İlkin, 1984: 72), like avoiding the addition of

new houses, or the enlargement of plots, decreasing the density, etc.

Bahçelievler Housing Cooperative was very similar to the Garden City experience in that they both emerged as a response to their housing need and were both organized in a similar way. They also tend to create a new life style which is urbanized and also pastoral at the same time.

Turkish example is also significant due to the fact that the Republic was newly founded and the idea of building cooperatives was supported by the government as a tool to create national bourgeoisie and residential areas to house them.

2.5 Mass Housing Districts As One Of The Housing Provision Types In Turkey

2.5.1 Capitalization After 2nd World War

Several institutions have provided either credits for construction or housing stock in masses for several

decades, such as Real Estate and Credit Bank (Emlak Kredi Bankası), Social Security Organization(SSK), Mutual Help Organization of Army Officers(OYAK), Pension Fund of Self-Employed Proffessionals(BAĞKUR), although they constitute a small portion of the total private housing investments (Türel, 1993: 2,3).

Tekeli (1982b: 241) states that capitalization interferes with all sectors in economy and leading structural changes in those sectors. Therefore the contemporary situation of housing sector in Turkey can be also conceptualized within the framework of capitalization process in the country.

In his article on capitalization process of Mass-Housing Acar (1978: 35) argues, that they are the sites for the reproduction of labor - due to an assumption that they are low-cost social houses for blue collar workers - as well as being tools to keep the labor around industrial sites with the provision of housing. In addition, housing provision helps to expand the market since the inhabitants of mass-housing districts are potential consumers; and this

kind of places provide a way of life based on consumption.

During capitalization and modernization processes housing becomes a tool for controlling the economy and further urban growth for professionals, social security for lay-man and a rent source for speculators. Commercialization of the house results in the loss of the meaning of the environment as a place to live in. Introduction of flat ownership system has accelerated the process of commercialization of land and house as a speculative rent source.

Ownership pattern based on properties of single houses on a single building plot had changed into flat-ownership, starting from the end of 1950s. Balamir (1996: 339, 340) states that the flat-ownership system introduced and advanced the technology of construction and generated a new mode of urban life. He also mentions that the flat-ownership practice has evolved through market relations contradicting the basic principle of Roman

law system based on the singularity of property rights on each independent unit of land. Physical output of the institutionalization of this process was the invasion of apartment blocks, all in 1965. Even the existing stock was demolished and changed into concrete-framed multi-storey blocks. Intervention by state in 1980s, i.e. the official choice of providing substantial financial support to cooperatives and mass-production could not alter this trend. As a result of this change in ownership pattern, design of interiors of the houses gained importance (Tekeli, 1982b: 248); although the facade and exterior, i.e. immediate environment of the house was also an indicator for the status and taste, previously.

As a consequence of increasing land values the fringes of the cities became more attractive sites for middle income groups (Tekeli, 1982: 252, 253). Preference for the construction of multi-storey building necessitated a more organized and large scale implementation process, which would lead to Mass Housing Provision in 1970s. Small-scale

contractors, i.e. actors of build-and-sell type of construction, who were producing a limited number of houses for higher-income groups and commercializing the production process with higher cost in a long period of time, could not fulfill the demand of lower-income groups and create desirable environments (Tekeli, 1982b: 255). Tekeli proposes the Mass Housing Provision as an alternative to development by small-scale contractors. He adds that in the mass-production of housing there occurs a need for a specialized organization which will activate the demand in masses and provide industrialized housing. Such an organization also keeps the contact between the owner of demand and the designer. In addition, environmental design of housing site also gains importance (Tekeli, 1982b: 256, 257).

It was expected that the production of housing in large numbers in an organized way will cause creating better environments through communal initiative compared to those environments produced by small scale entrepreneurs and individual efforts. However, Özüekren, (1996: 360) states that the quality of

urban life in cooperative housing areas has always been declining due to the trend of building apartment blocks to keep the land price lower; a practice enable by the flat ownership system. So, communal facilities have been almost totally excluded in these areas.

2.5.2 Housing Provision in the 1980s

Bilgin (1996: 473) divides the modernization period experienced in Turkey into sub-periods, the last one beginning in 1980s within a local perspective as the period of implementation of international standards in communication, exportation and liberal economy. He argues that the distinguishing features of modernization process, such as universal interaction, dependence of housing and settlement on economic and political development, universality of solutions and weakening of the cultural sphere, are the indicators of the characteristics of modernization, called discontinuity, decontextualization and reflexivity by Giddens (cited by Bilgin, 1996: 472) and mentioned in the introductory chapter of this study.

Bilgin also states (1996: 489, 490) that the build-and-sell and squatter types of production could no longer meet the demand and private and public sectors began to undertake large scale mass-housing projects. Mass housing projects implemented by the private sector mostly has higher standards as isolated settlements, offering a life style that transcended the individual residence.

The concept of 'mass housing' referring to the production of large numbers of dwellings has been misinterpreted in Turkey, as Tapan also mentioned (1996: 366). It has been associated mostly with social housing, although the origins of the two concepts are different. Tapan says that 'mass-housing' has originated as a commercial concept of market economy, whereas 'social housing' means a dwelling produced by the state, local government or other social institutions independent from market economy.

Lodgement houses built by the state can be classified under the heading of social housing in the Turkish case, although they are quite different from of 'social housing', as defined in the *Act of Mass-Housing* and institutionalized in 1981, in terms of ownership and size of dwellings. Definitions in this act are based on the size and the density of the land to be planned. Sites with 750 or 1000 dwellings on 1 ha, and their common facilities and work places were named as mass housing districts. Social housing is, on the other hand, defined as low-cost housing below 100m2 and suitable to the life-style of the society, which is not very clear (*Toplu Konut Kanunu*, 1982:1). Nevertheless, in the literature, the term of mass-housing is mostly used as the synonym of social housing (Acar, 1978; Tapan, 1996; Teymur, 1978).

Tapan (1996: 372) defines the concept of mass-housing as the housing production which has arisen as a result of projects aiming at producing a large number of dwellings by public or private associations for those who can not acquire a dwelling through their own savings. He also adds that the mass housing

policies in different countries change with time and show variations depending on the country's socio-economic structure. Having argued that the mass housing districts can not have peculiar characteristics independent from the existing determinants of the society, Teymur also states that the concept becomes more complex if the term includes a social content. He argues that mass housing district is a mass consumption site. It can not be avoided that the consumption in the society is also determined by the rules of capitalist modes of production. The housing sector can be as social as the society trying to be developed in a capitalist way (1978: 21).

The Turkish experience of housing provision has also some peculiar features due to the country's unique political history, socio-economical structure and cultural values. Therefore, the concept of Mass Housing, as housing on a pre-planned site which is also widely used as a tool of urban growth policies since 1980s, is quite different from the idea of Garden City, New Towns and other Social Housing

concepts and examples realized in western urban history. It is called 'mass housing' because dwellings are built in masses. Although urban growth is attempted to be controlled by these kinds of investments on land, they are not the same as European New Towns, since mass housing districts lack rapid transportation facilities and an easy contact to the city. They do not provide job opportunities, thus they are not like British New Towns. Building types are different from those in American suburbs. In mass housing districts there are houses with various types and heights. And there is no attempt to create semi-urban life in a natural environment, as was advocated by the Garden City idea.

Table 2.1 Types of New Developments

TYPES OF NEW DEVELOPMENTS	COUNTRY	PERIOD	AIMS & IDEAS	SPATIAL & SOCIAL FEATURES
GARDEN CITY	Britain	end of 19th century	utopias; both rural & urban life	marriage of urban and rural life
NEW TOWNS BRITISH NEW TOWNS-SATELLITE TOWNS	Britain	at the 1st half of 20th century	decentralization of employment; self-sufficient subcentres	urban life with all facilities and job opportunity
EUROPEAN NEW TOWNS-DORMITORY TOWNS	Europe: France, Germany, Scandinavia	//	regional growth policies; orderly development of metropolis	accommodation possibility next to a big city
AMERICAN NEW TOWNS-SUBURBS	USA, Canada	//	outside of the public sphere; not a part of urban and regional growth	low density, low variety, family-based
SOCIAL HOUSING	mostly in socialist countries		subsidy by state; independent from market economy	communal services and life
MASS HOUSING	Turkish case	since 1980s	commercial concept of market economy; large number of dwellings; urban growth control	familism, variety in housing types, lack of communal services

Adapted from various readings

2.5.3 Spatial Features of Mass Housing Districts

As defined above, mass housing districts are the results of both modern planning and design issues and unique socio-economic conditions. Therefore, site plans and environmental designs of this type of districts are mostly based on modern planning and design principles, i.e. neighborhood units composed of apartment blocks and shared facilities, emerged in 1920's, as it is mentioned earlier in the second chapter of this study.

Early examples of mass housing could be observed since the 19th century, in late Ottoman period, in İstanbul, in the form of row houses built for bureaucrats or for immigrants. Particularly, in the 1930s, lodgement houses were built around industrial areas for workers, which were managed and maintained by the state. During the 1940s, Saraçoğlu Neighborhood was realized in Ankara following the idea of neighborhood unit. At the same time, there were other examples built after natural disasters, like the earthquakes of Erzincan and Bingöl. In

1950s, Yenimahalle was implemented in Ankara as a reaction to the expansion of squatter housing, as well as Ataköy, an important example by Building and Credit Bank (Emlak Kredi Bankası) with almost 12 000 dwellings, and Levent in İstanbul. During 1960s and 70s Labor Unions began to build mass housing districts, such as Aydınlıkevler, Türk-İş and Disk-Kent in big cities (*Mimarlık*, 1978 (3): 17). In 1984, the Act of Mass Housing Fund and Housing Development Administration (TOKİ) was established with the aim of fulfilling the provision of housing, regulating construction activity, developing proper building technologies and directing the funds towards housing. In addition, in 1980s and 1990s, there are still other institutions and cooperatives, such as Real Estate Bank (Emlak Bankası), Kent Koop., Ege Koop, MESA, Soyak, etc. in the mass housing market providing housing districts mostly in the new development areas of big cities based on the design idea of neighborhood units with apartment houses or/and point blocks (*Mimarlık*, 1995 (261):19-21).

Figure 2.17 Ataköy by Housing Development Administration, *Mimarlık* 261 (1995) 19.

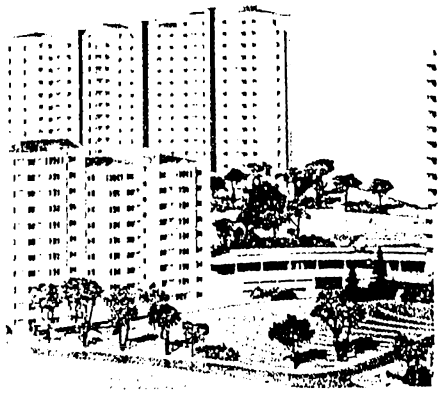

Figure 2.18 Bilkent II by Real Estate Bank(Emlak Kredi Bankası) *Mimarlık* 261 (1995) 19.

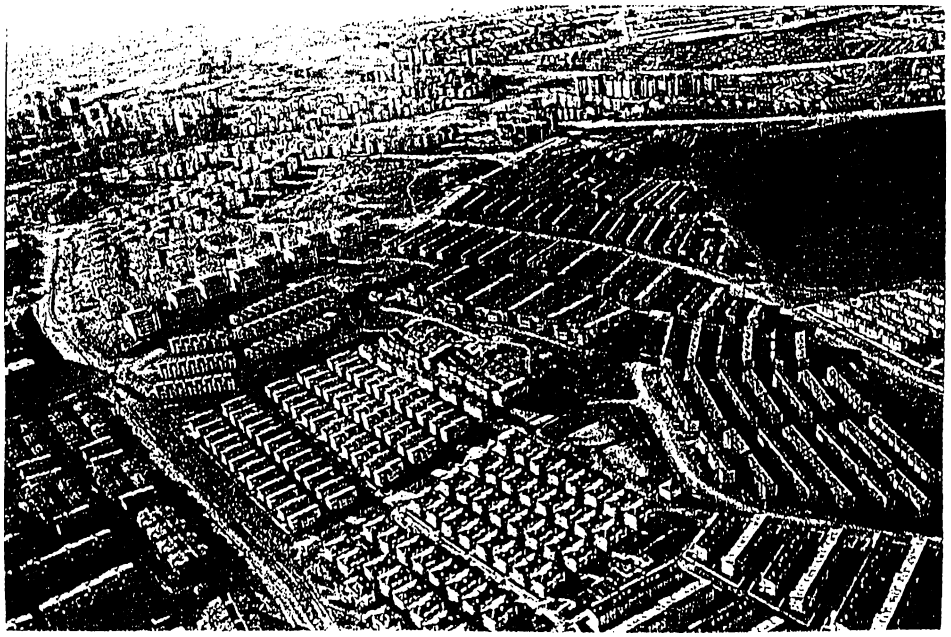

Figure 2.19 Batıkent Settlement, A.Ş. Özüekren, "Kooperatifler ve Konut Üretimi". *Housing and Settlement in Anatolia: A Historical Perspective* (İstanbul: Tarih Vakfı, 1996) 362.

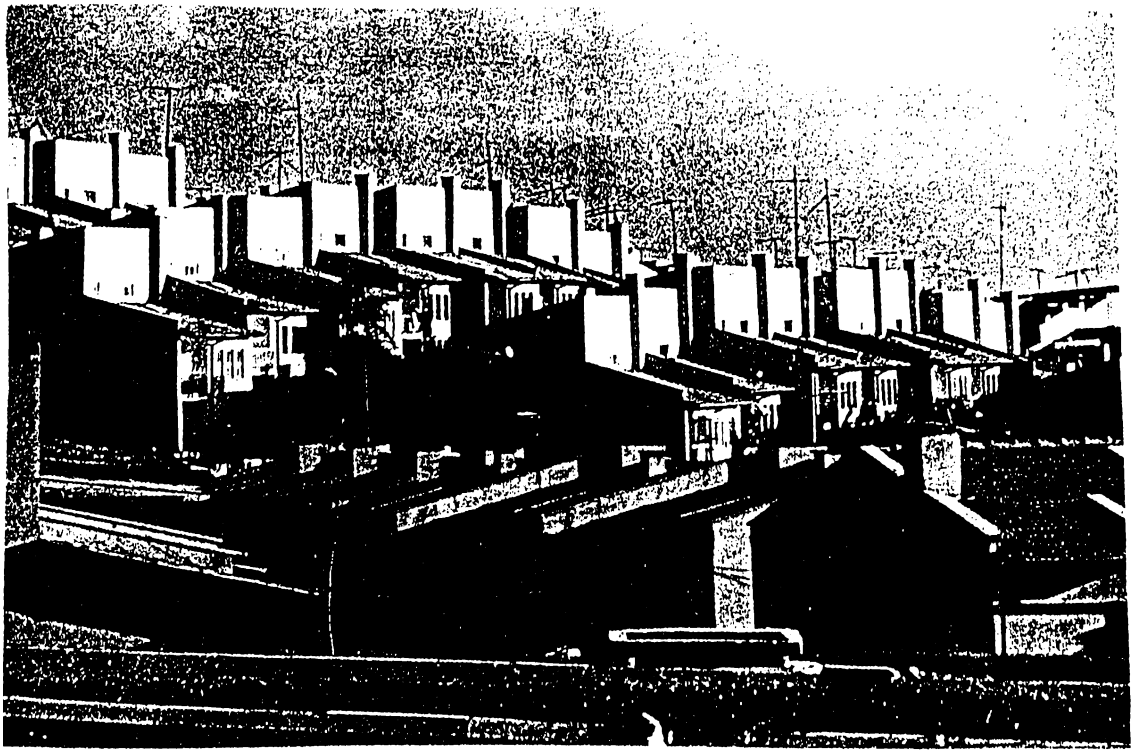

Figure 2.20 Batıkent silhouette, *Mimarlık*, 261 (1995) 26.

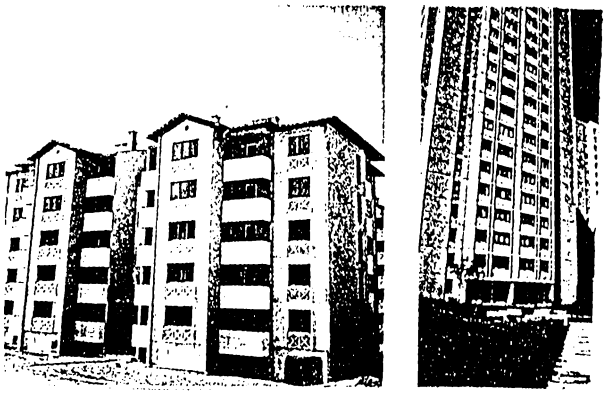

Figure 2.21 Koru Neighborhood by MESA, *Mimarlık*, 261 (1995) 21.

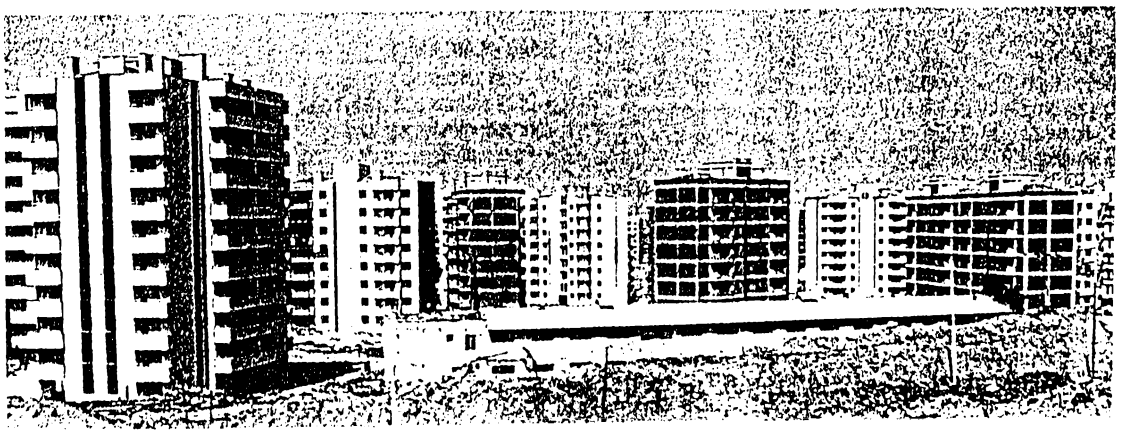

Figure 2.22 Ege Kent by Ege Koop in 1994, *Mimarlık* 261 (1995) 29.

Figure 2.23 Göztepe by SOYAK, *Mimarlık* 261 (1995) 21.

Tapan (1996: 366, 367) introduces typologies of European mass housing projects, in his article. For example, row houses, back-to-back, single or twin houses or apartment blocks in England; blocks with interior courtyards in Belgium and Austria; or those like Garden City Movement and New Town type settlements with various types of dwellings and

facilities. Those spatial characteristics have arisen by the production process, standards and ownership patterns, as well. He also lists Turkish mass housing examples realized in the modernization period, such as Bahçelievler and Saraçoğlu in Ankara, lodgement houses in Kozlu, Ereğli, Karabük, Hereke and İzmit, stating that these applications reflected similar design principles and were influenced by architectural trends like Bauhaus or De Stijl.

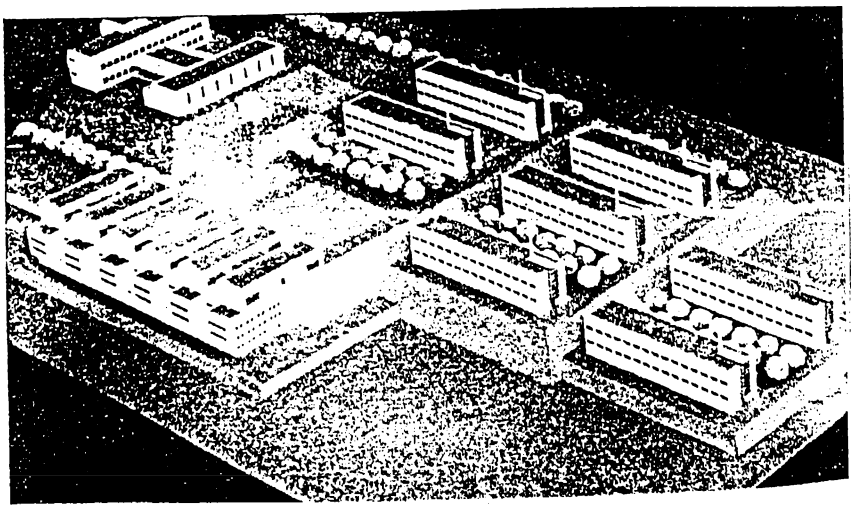

Figure 2.24 Kozlu Coal Workers' Housing, Zonguldak; model *Arkitekt*, 9, 1935, 257 reffered by İ. Bilgin, "Anadolu'da Modernleşme Sürecinde Konut ve Yerleşme". *Tarihten Günümüze Anadolu'da Konut ve Yerleşme* (İstanbul: Tarih vakfı Yayınları, 1996) 481.

There are two interesting examples in Ankara mentioned by Gürel (1984). OR-AN is a neighborhood proposed to control urban growth, similar to the idea of New Town. The site is almost 10 km far from the

city centre and dependent on this centre due to the small neighborhood centres. The other one is Batıkent, proposed as a satellite town to create a new centre and job opportunities with an industrial site next to it. It was also aimed to provide housing for low and middle income groups by means of credits and even self-help housing, yet the success of Batıkent is limited ,in this respects, as far as we can observe. However, in Batıkent, housing cooperatives organized among themselves and established a union of cooperatives through this experience.

All these examples are 'artificial' environments, contrary to central cities which have a common urban image with their own historical background and spatial accumulation. 'Spontaneous' and 'artificial' environments are the concepts proposed by Alexander arguing that these artificially designed environments are not successful due to the extinction of their crucial components (cited by Günay, 1995: 47). Following Alexander's argument, Günay (1995) has developed a proposal for the 7th and 8th

neighborhoods in Ataköy Mass Housing District based on culturalist design movements, i.e. Team-10. This approach tries to promote the identity of the settlement, co-existence instead of functional zoning is suggested, and the urban environments are used as connecting spaces instead of vast land, proposing continuity and variety in design solutions.

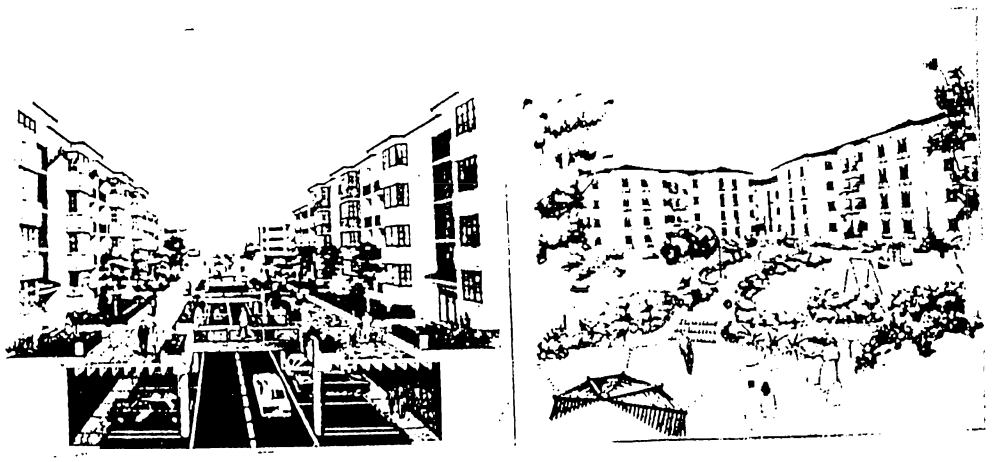

Figure 2.25 Ataköy, 7th and 8th Neighborhoods, B. Günay, "Ataköy 7. ve 8. Mahalleler: Bir Tasarım Deneyimi". *Mimarlık* 264 (1995) 49,50.

Mass housing projects realized in the last decade are mostly composed of dwellings built in masses following the ideas of neighborhood and functional zoning of modern planning. They were proposed as

tools for the control of undesirable urban growth in the fringes of cities. However, although these areas are highly dependent on the city centre in terms of employment , social facilities and specialized services, there are no rapid transportation links yet. Despite the fact that these cooperatives are established before the construction period, face to face relationship between the prospective users and the decision makers so that the neighborhoods are designed considering the preferences of the households could not be established (Özüekren, 1996:361). Thus the choices are limited to the plan types prepared by the cooperative managements. Physical structure and spatial characteristics are also mainly shaped as apartments and point blocks on a vast land without any well-defined and perceivable separation of public and private spaces in a hierarchy. Bilgen and Kocabay (1995:216-223) argue that due to the preferences about the construction technology to be used and costs, monotonous settlements without any concern for identity and variety are built in mass housing districts. They propose some design principles in order to create

better living spaces instead of commercialized housing units. One of these principles is to produce common areas providing continuity between indoor and outdoor spaces respecting the humanscale and human factor, instead of erecting blocks on no-man's land. Their other suggestions are related with providing variety in physical structure and social facilities to create communal life for the inhabitants.

3 COMPONENTS OF BUILT ENVIRONMENT

3.1 Theories on Man-Environment Relations: Transactional Theory And Related Topics

Transactional Theory pays attention to the role of experience in perception emphasizing the dynamic relationship between man and environment. The environment, the observer and the perception are mutually dependent on each other. Perception is a multimodal, active relationship between person and environment. It cannot be explained by separating behavior into the perceiver and the perceived and in terms of conditioned responses of stimuli. The image of the environment depends on past experiences, as

well as on present motives and attitudes. Those past experiences are projected onto the present situation with respect to one's needs. Perception is governed by expectancies and predispositions.

> The information obtained from the environment has symbolic properties that give it meaning, ambient qualities that evoke emotional responses, and motivational messages that stimulate needs. An individual also assigns value and aesthetic properties to it. Because humans need to experience the environment as a pattern of meaningful relationships, past experiences form the basis for understanding the new (Lang, 1987: 90).

Transactional Theory has contributed to environmental design theory the idea that the experience shapes what people pay attention to in the environment and what is important for them (Lang, 1987: 89,90).

The interaction between people and their environment is the basic source of the environmental design and related theories and is conceptualized by Gibson (qtd. in Lang, 1987: 84).

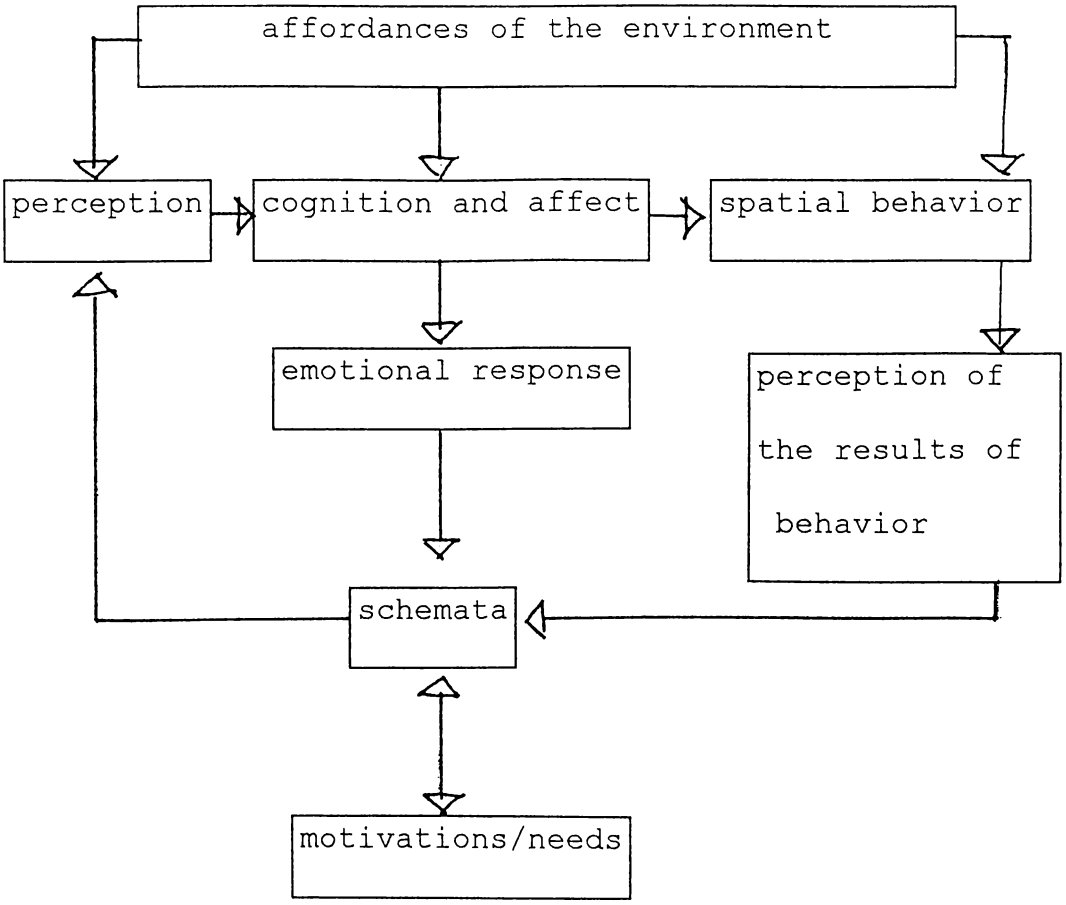

Figure 3.1. Interaction between man and environment, by Gibson qtd. by J. Lang, *Creating Architectural Theory* (Stansburg: Van Nostrand and Reinhold Company, 1987) 84.

In this scheme, spatial behavior is shaped by the affordances of the environment, cognition and affection, which is also a result of perception and affordances of environment. Perceptual processes are guided by schemata partially formed by motivations and needs, and partially learned. Then, human needs

as the basis of schemata and perception and how the perception occurs gain importance. Therefore environmental design theories explain the human needs and perception, as well as the affordances of environment.

3.2 Components Of Built-Environment

The components of the built environment will be discussed here under three main domains derived from a literature review on suburbanization, man-environment relations, and conception of space and urban identity. These three domains cover all the concepts related to built environment, and man-to-society and man-to-environment relations, which take place on public space. The first of them is 'societal organization' discussing social aspects of settlement and the way of life shaped by its particular spatial organization. Types of facilities, spare-time activities, use of public spaces, variety of specialized services, degree of heterogeneity of the inhabitants, existence of possibilities for participation are the points which

will be concentrated on. Secondly, 'physical structure' includes physical parameters in the discourse about the environment designed in a settlement, such as variety in the environment, functional zoning, accumulation on space, density, hierarchy of space and aesthetics. And lastly, 'man-environment interaction' is another domain considering the interaction between the person and the environment in terms of satisfaction of human needs, territoriality, milieu-behavior synomorphy, socialization and individuation, and meaning.

3.2.1 Societal Organization

3.2.1.1 Publicness and Familism

Publicness, which is to reflect ourselves, our larger culture, our private beliefs, and public values, is introduced by Berman (cited by Francis, 1989:149) stating that "public space is the common ground where civility and our collective sense of what may be called '*publicness*' are developed and expressed".

Familism is, on the other hand, a term introduced by Choldin (1985:387) in order to define the social characteristics of new development areas stating that the activities in these areas are mostly family-based.

3.2.1.2 Degree of Specialization

Specialization means existence and variety of specialized services and commercial activities, which would decrease the dependency on the city.

3.2.1.3 Homogeneity/Heterogeneity

Homogeneity/heterogeneity is that of human population in MHD. The city is expressed in the notion of urbanism as characterized by the "transition from primary to secondary relations, role segmentation, anonymity, isolation, instrumental relations, the absence of direct social control, the diversity and transience of social commitments, the loosening of family ties and

individualistic competition" by Redfield (cited by Castells, 1976: 37). This new culture has emerged due to the permanent settlement of a human population of high density and high degree of heterogeneity. MHD house a homogeneous population in that they are mostly middle income families. This homogeneity also results due to the production process of such environments.

3.2.1.4 Level/Type of Participation

Participation covers all types of contributions by inhabitants at each step of formation of space and post-occupancy stage including the degree of possibility to contribute.

Participation and having a role in decisions about the environment is the only way to take part in the urban life (Francis, 1989:147-172). Alonso (1970: 46) states that participation in new towns is also limited due to the struggle of developers to keep control over the nature and timing of the development according to the physical and financial plans. Everything is planned in details.

3.2.2 Physical Environment

3.2.2.1 Variety/Monotony

Variety is a set of environmental qualities corresponding to a complex order and a set of similar but not equal elements that belong to a common typology. Rhythmical differences in commonalities unify the set. Lack of variety causes monotony and disorientation. Monotony is the case with the lack of minimum differentiation which is necessary for orientation. It results in sensorial rejection to a degree that the environment is partially unperceived (Lozano, 1992: 401, 403).

3.2.2.2 Zoning/Integration of Functions

Functional zoning is allocation of functions by grouping and separating one from the others. The physical features of MHD's appear frequently such as cluster housing, grade separation of different types of traffic, juxtaposition of buildings of various

types and certain mixtures of land uses which are usually separated in conventional zoning practice (Alonso: 37-55),as mentioned earlier.

Walzer (1986) states that a public space surrounded by a mix of public and private buildings with multiple uses and joined together creates a vital and receptive quality which is an open minded space designed for a variety of uses whereas zoned business and residential areas, the modern dormitory suburb are single minded spaces.

3.2.2.3 Pre-Planned/Accumulated

Pre-planned environments are spaces which are planned and designed in details without any contributions in the post-occupancy period, whereas others are formed by means of an accumulation process on space with all kinds of contributions by their inhabitants.

3.2.2.4 Density

Jacobs (cited by Broadbent, 1990: 142, 143) point out that there are differences between crowding and density. She argues that if a given area contains enough buildings, of the right kind, then considerable densities can be achieved without any one feeling over-crowded. Her proposal for suburbs is 6-10 dwellings per acre. As the density approaches to 20 dwellings per acre, urban values begin to take over. Urban vitality starts for Jacobs at 100 dwellings to the acre.

Holyoak (1993: 62) introduces that the district should reach a certain threshold density. He proposes approximately 100-120 people per acre.

On the other hand, with respect to the culturalist and progressists approaches introduced by Choay (in Günay, 1988), culturalist approach proposes continuity of solids and low-rise/high-density instead of continuity of voids and high-rise/low-density buildings.

3.2.2.5 Variety and Hierarchy of Spaces

There is a hierarchy of spaces introduced by Newman (quoted in Broadbent, 1990: 149): private , semi-private, semi-public and public spaces. Increased personal control results in privatization of spaces. Between the two extremes, there exist semi-public space, clearly reserved for those who live or are visiting the space for legitimate purposes, and semi-private space, which belongs to single dwelling although it is open to public access (Lang, 1994: 246).

3.2.2.6 Aesthetics

Although the topic of aesthetics has been discussed among philosophers, artists and architects for centuries, Lang (1987: 186) defined aesthetic experience in a broad sense that people get pleasure from an environment whose structure well affords standing patterns of behavior in a comfortable way in terms of their personality, social group and cultural characteristics. This explanation is based

on the main hypothesis that the environment is considered to consist of a nested set of behavior settings and people's responses to a place are as a behavior setting. An environment which well affords a standing pattern of behavior is aesthetically pleasing. It provides pleasurable sensory experiences, as well as having a pleasing perceptual structure and pleasurable symbolic associations.

3.2.3 Man-Environment Interaction

3.2.3.1 Satisfaction of Human Needs

Human needs conceptualized by Maslow (qtd. by Lang, 1994: 155) can be translated into activity systems and aesthetic requirements for operational purposes in urban design .

Table 3.1 Models of human needs

MASLOW (1987) Human Motivations	LEIGHTON (1959) Essential Striving Sentiments	CANTRIL (1965) Patterns of Human Concerns	GROSS (Lewis 1977)	STEELE (1973)
BASIC NEEDS				
Survival	Physical Security Sexual Satisfaction	Survival		Shelter and security
Safety and Security	Orientation in society	Security, Order		Social contact
Belonging	Securing of love	Identity	Belonging, Participation	Symbolic identification
Esteem	Recognition		Affection Status Respect Power	Growth Pleasure
Self-Actualization		Capacity for choice and freedom	Self-fulfillment	
COGNITIVE NEEDS				
Cognitive	Expressions of love, hostility, spontaneity		Creativity	Growth
Aesthetic			Beauty	Pleasure

Adapted from R Peterson (1969), Lewis (1977), and Mikellides (1988 b)

Source: J. Lang, *Urban Design: The American Experience* (New York: Van Nostrand Reinhold, 1994) 155.

The most basic human need is that for survival. There are those for health, development and comfort within the physiological needs. In addition, there is a need for harm-avoidance among human beings. Safety needs combine a diverse set of needs including those related to physiological and psychological protection. Affiliation needs contain the sense of belonging, community and relatedness, as well as to receive affection and approval from other people and are met by being a member of formal, communal

organizations or kinship systems, etc. People strive for competence, confidence, independence, and freedom of self expression, which is named as esteem needs. Fulfillment of them is manifested in various ways, such as having control of one's own life and over other people's lives, and having the symbols of control to display, territorial control, symbolic barriers in architectural and urban layout. Self-actualization need, which is termed as individuation by Jung, is the process of striving toward individuality and self realization. It can be translated into the striving for appropriate architectural symbols and for behavioral control and autonomy. Striving to attain cognitive and aesthetic needs, which are the needs to be able to learn and those for beauty, are parallel to that for attainment of basic needs. The environment presents a universe to be explored and for testing one's knowledge and skills, which people strive to have access to. Cognitive needs are basic to life. At every level of the fulfillment of basic needs there is also a need for beauty and for self-expression as it is defined in various cultures. Human needs are neither

independent nor mutually exclusive. They are highly interdependent (Lang, 1994:155-162).

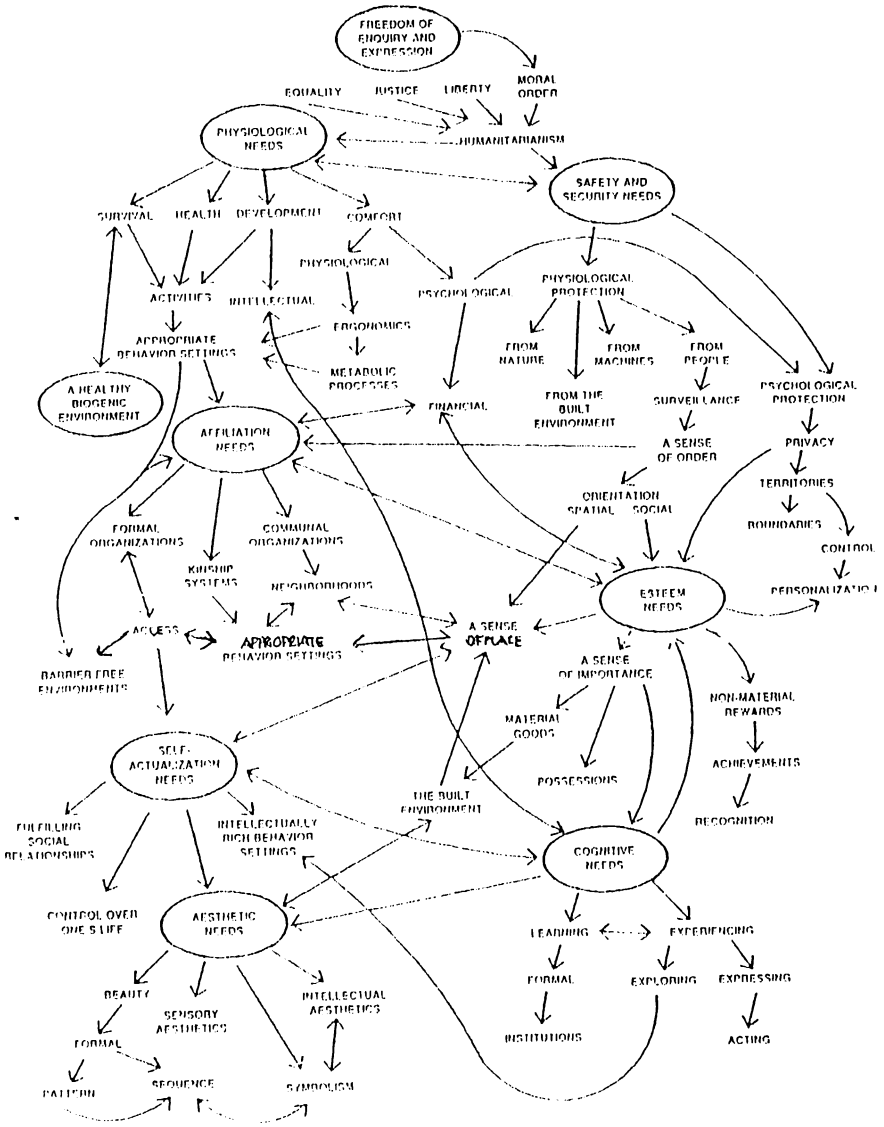

Figure 3.2. Interdependency and hierarchy of human needs, J. Lang, *Urban Design: The American Experience* (New York: Van Nostrand Reinhold, 1994) 157.

3.2.3.2 Territoriality

Territoriality is control over the use of space based on the distance and appropriation and attachment of the space.

The word territoriality was first used related to the spatial behavior of animals. It refers to the act of laying claim to a geographic area, and marking it for identification and defending it against others. Brower (1980: 180,181) argues that the concept of territoriality should be distinguished from other spatial concepts like personal space, jurisdiction and home range. Personal space surrounds an individual, moving with him as he moves from place to place. On the other hand, territoriality is tied to a particular geographic location. Jurisdiction refers to the temporary control of a space where the origin and limits of authority are role-related, for example an actor may have jurisdiction over the stage during the performance. Home range is the network of spaces that a person uses regularly. These are spaces that one is familiar with and feels at home.

Privacy is defined as an interpersonal boundary regulation process by which a person or a group regulates interaction with others, as Altman first introduced in 1975 (cited by Altman and Chemers, 1989:75). It is a changing process by which people attempt to regulate their openness/closedness to others.

Personal space and territory with verbal and nonverbal responses and cultural practices operate as behavioral mechanisms to facilitate privacy regulation. It is a dialectic boundary control process and involves more than environmental mechanisms, such as verbal and nonverbal behavior and cultural practices. It helps to manage and pace the social interaction. It is also essential to people's well-being, viability and self identity. Privacy regulation is a cultural universal process, in which people have several levels of control and various types of social interaction in terms of privacy in different cultures (Altman and Chemers, 1989: 99,100).

There is a model introduced by Brower (1980:180-184) of territorial behavior as one of two interacting forces, spatial and non-spatial ones, guarding against the threat of unregulated interaction.

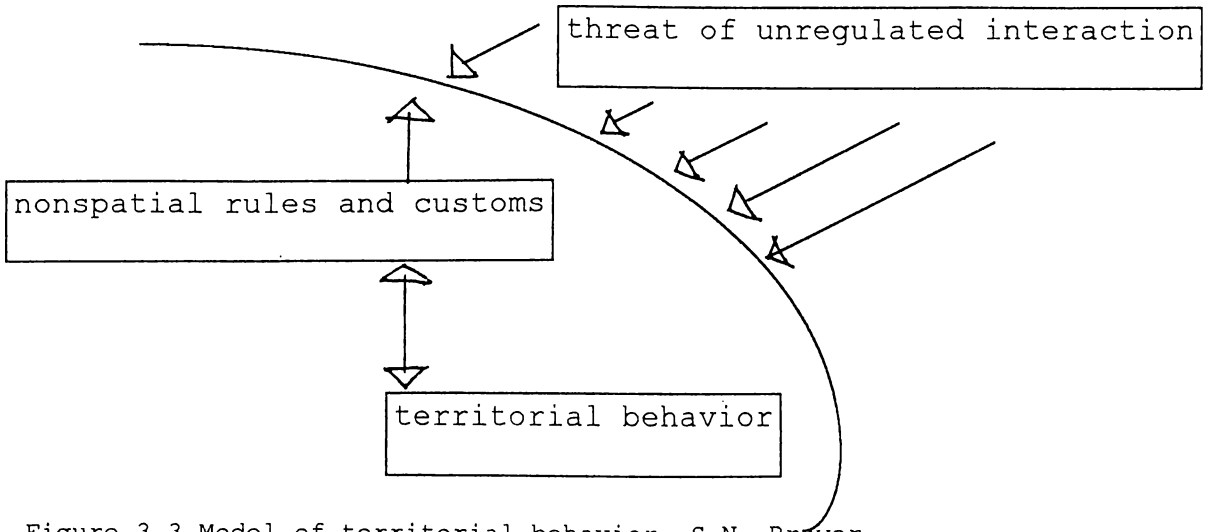

Figure 3.3 Model of territorial behavior, S.N. Brower, "Territory in Urban Settings" *Human Behavior and Environment*. I. Altman and J. F. Wohlwill (eds.) (New York: Plenum Press, 1980) 184.

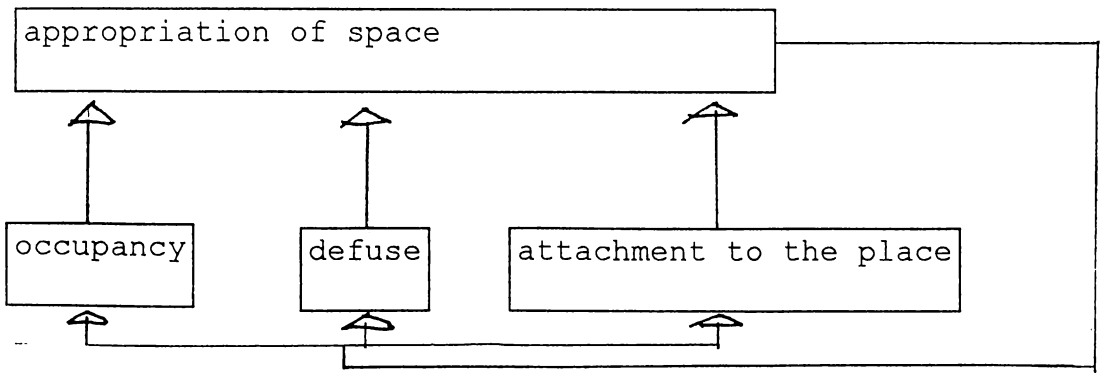

Figure 3.4 Components of territorial behavior, S.N. Brower, "Territory in Urban Settings" *Human Behavior and Environment*. I. Altman and J. F. Wohlwill (eds.) (New York: Plenum Press, 1980) 184.

The concept of territoriality deals with behavior that directly affects the security and maintenance of the physical environment.

Occupancy is accompanied by a display of territorial signs announcing the existence, nature and extend of the territorial claim. There are other typologies for occupancy driven from sociological concepts, for example that of Altman (cited by Brower,1980: 185), primary, secondary and public territories. On the other hand Brower(1980: 185-187) introduced the concepts of personal occupancy, community occupancy, occupancy by society and free occupancy. Each of them have some basic elements, which are a range of control over the use of space, a person or a group who wants to appropriate the space and a display of signs announcing the appropriation. These four types of occupancies point to a continuous scale of social regulation from strict control to no control.

As threat increases, territorial behavior tends to become more defensive in various forms, like increased surveillance, clearer delineation of

boundaries, erection of barriers, tightening of rules governing admission and use, more obvious display of territorial signs. Newman argued (cited by Brower, 1980: 191) that a space will be defended if it has clearly defined geographic boundaries. However the view point of Brower is that improvements in site design making a space more defensible will increase the likelihood of appropriation, but only to the extent that suitable occupancy conditions exist and that occupants have a feeling of attachment for the place.

Territoriality is based on the concept of distance introduced by Hall (1966). He defined distant receptors which are eyes, ears and the nose, as well as immediate receptor, touch. He also introduced the terms thermal, tactile and visual space with respect to different ways in which people experience space, constant visual, kinesthetic and tactile ones. His informal distance classification has four stages; intimate, personal, social and public distance.

3.2.3.3 Milieu-Behavior Synomorphy

Barker (1968) introduced the term behavior setting, including standing patterns of behavior and milieu, as a concept for studying the environment of human behavior. He stated that the milieu is synomorphic and circumjacent to behavior. Sources of behavior-milieu synomorphy are mentioned as physical and social forces, physiological processes, learning, selection by people, selection by behavior settings and influence of behavior on milieu. An environment should provide possibilities for the existence of nested set of behavior.

Barker (1968: 18-23) mentioned the essential attributes of a behavior setting such that a behavior setting consists of one or more standing patterns of behavior which are behavior units. Behavior setting consists of milieu as well as standing patterns of behavior. The behavior patterns are attached to particular non-behavioral phenomena. Milieu is a complex of times, places and objects. It surrounds the behavior. Both the milieu and the behavior are

similar in structure. The behavior-milieu parts are called synomorphs and structurally a behavior setting is a set of such synomorphs, which have specified degree of interdependence.

3.2.3.4 Individuation/Socialization

Socialization process is a means to preserve the culture of societies, which can be defined as shared beliefs, values and styles of behavior passing on to others, from one generation to the next. Society's values, beliefs and practices also appear in objects and in the physical environment, in addition to its mental and behavioral aspects. Home designs, community layouts and public buildings reflect the values and beliefs (Altman and Chemers,1989: 4). Therefore, socialization process takes place in public places where the shared beliefs, values and styles of behavior are learned.

On the other hand, Jung (in Storr, 1983: 20-24) defines individuation as parting company with the crowd and being impelled by the inner nature to seek

the own path. His philosophy is ruled by the idea of affirmation of individuality. Individuation, which is the process of understanding and coming to terms with the different aspects of someone's inner being, enables, differently from individualization, him to live life more completely.

Both socialization and individuation take place in physical spaces that range from private and public with respect to the hierarchy of spaces. Even public spaces are places for individuation, as well as enabling socialization process. Therefore, there should be a variety of spaces providing flexibility so that people can be involved or not as the occasion and mode demand. Public spaces should accommodate both the individuation and socialization processes.

3.2.3.5 Meaning

In the modern movement, it is suggested that the meaning is the most important aspect of function. It is central to an understanding of how environments

work. In fact, the meaning of the environment is critical because the physical environment and elements in it are used in the presentation of self and in establishing group identity (Rapoport, 1990: 15). Rapoport suggests three major ways to study environmental meaning. First one is using semiotic models based on linguistics. The second way is relying on the study of symbols. Lastly, using models based on nonverbal communication coming from anthropology, psychology and ethnology, on which he concentrated mostly. He argued that meaning communicates the context and provides information about status, lifestyle, ethnicity etc., which are important part of both the context and the situation influencing communication (1990: 183).

Rapoport (1990: 82, 103) proposed two figures, one is conceptualizing the encoding/decoding of environmental information (Figure 3.5) and the other one is about non-verbal communication model (Figure 3.6).

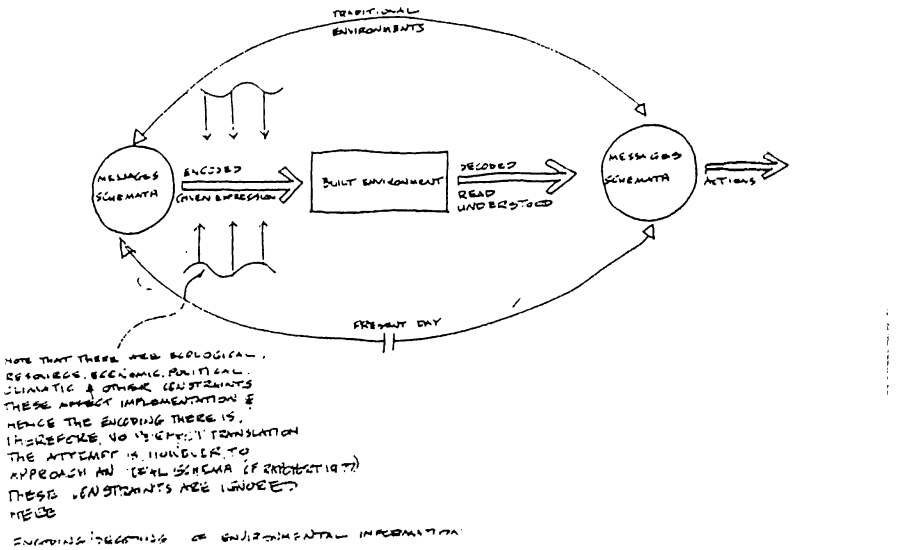

Figure 3.5 Encoding/decoding of environmental information, A. Rapoport, *The Meaning of the Built Environment: A Non-verbal Communication Approach* (Tuscon: The University of Arizona Press, 1990) 82-103.

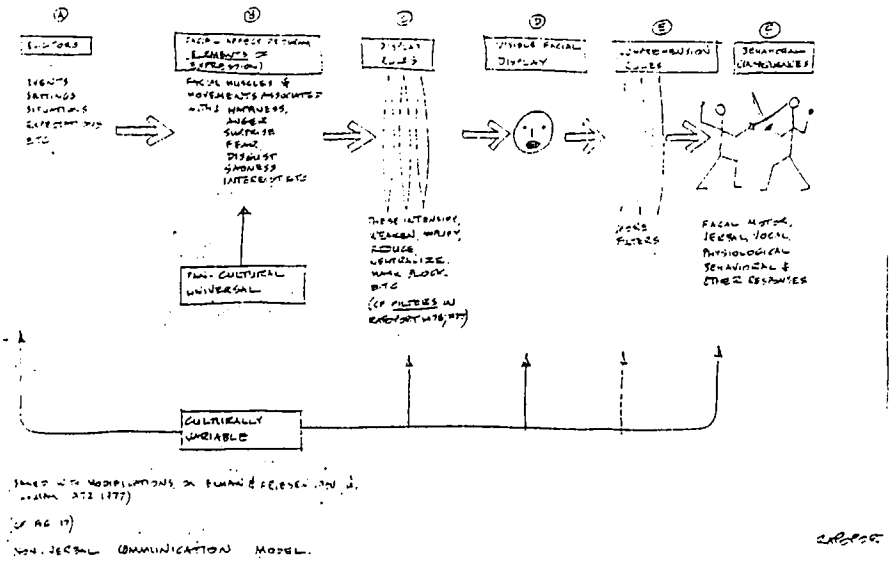

Figure 3.6 Non-verbal communication model, A. Rapoport, *The Meaning of the Built Environment: A Non-verbal Communication Approach* (Tuscon: The University of Arizona Press, 1990) 82-103.

In addition, Lang (1994: 27) mentioned several levels and classifications of meaning. For example, Gibson introduced 'concrete meaning' which is the physical characteristics of the object; 'use meaning', the utility of it; thirdly 'meaning of objects' as machines and instruments; forth level is 'emotional and affective meaning'; at the fifth level object as a 'sign'; and at the sixth level object can be a 'symbol'. Symbolic meanings are those associated with an object or a phenomenon. They are culture-bound and learned. Lang (1994: 27, 28) also stated that some symbolic meanings appear to be based on the universals of human experience and are widely understood with respect to collective subconscious suggested by Jung. There are city patterns based on models of cosmological systems and symbols of the universal for the people who understand system. Other patterns have meanings assigned to them or they acquire a meaning through repeated usage.

3.2.3.6 Level/Type Of Control

Both in private and public spaces control is the key issue in appropriation and attachment of space.

Territories are defended by means of visible boundaries and markers, whereas the defense of personal space with invisible boundaries is a matter of gesture, posture and choosing a location with respect to others (Sommer, 1969: 45). Even in public spaces people's right to control their use and enjoyment of the space is an important dimension of quality. Control can contribute to a place being cared for; on the other hand, lack of it gives a sense of neglect or disregard. However, control by one individual and a group can also deny the right of access or use to other groups (Francis, 1989: 169). Accessibility, ownership and safety are other dimensions of control public spaces, as well as personalization and conflicts arisen from the desire for diverse and often competing groups (Francis, 1989: 161-166).

Brower(1980: 185-187) introduced four types of occupancies having a basic element, which is a range of control over the use of space, a person or a group who wants to appropriate the space and a display of signs announcing the appropriation. These occupancies point to a continuous scale of social regulation from strict control to no control.

3.3 Measures based on Components of Built Environment

As a result of the literature review on the main domains, four concepts have been derived in order to constitute a perspective during the study on built environment in new development areas. Those measures which can be sub-concepts of a desirable environment are:

Appropriation of Space: Appropriation of space; is to possess public spaces, attachment of them, control of the use of them. It includes the concepts of publicness and familism, territoriality and control.

Affordances of the Environment: Affordances of the environment includes what the environment provide in order to satisfy human needs, to accommodate both individuation and socialization within a hierarchy and variety of spaces transporting a peculiar meaning and aesthetics which are concepts discussed under the headings of physical environment and man-environment interaction.

Allocation of Functions: Allocation of functions is the organization of the environment in terms of specialization and existence of different facilities, and behavior settings, which are function of zoning/integration, specialization, milieu/behavior synomorphy and density.

Contributions by inhabitants: It includes all types of contributions by inhabitants at each step of formation of space and post-occupancy stage including the degree of ability of them in a pre-planned vs. accumulated space.

Those concepts can be valid for all types of built-environments. They have various manifestations in different types of settlements with respect to their sites and locations, cultural and historical backgrounds, design ideas and implementation processes, etc.

New development areas are the sites for the reproduction of urban meaning, aesthetics and life, as a way of the growth of cities. The structures on these sites transpose a peculiar meaning, information; they produce a special kind of aesthetics and provide a corresponding way of life. And these sub-concepts can be applied in a study in order to observe and conceptualize the physical and social structure there; how the built-up environment was shaped and what sort of a life it provides for the inhabitants.

4 A CASE STUDY ON ERYAMAN MASS HOUSING DISTRICT, ANKARA

4.1 Site and Historical Background of the Settlement

Eryaman Mass Housing District (MHD), is located 18 km away from the city centre, on the western development corridor of the city of Ankara. The whole site is 953.5 ha. There are Susuz Industrial Area, Atatürk Orman Çiftliği and Batıkent district on the East of the settlement. Eryaman village and Etimesgut settlements, Güzelkent and Devlet neighborhoods and a lake called Susuz are situated respectively on the South, West and North of the settlement (*Eryaman Toplu Konut Alanı: 1/1000 Ölçekli Revizyon İmar Planı-Plan Açıklama Raporu*: 1).

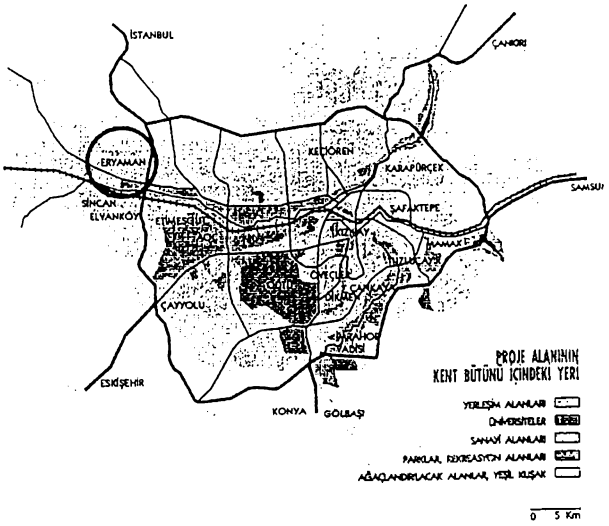

Figure 4.1 Location of the site in Ankara, *Metropol İmar 1989/1994* (Ankara: Metropol İmar Planlama Grubu, 1994) 12.

The district has been built on a land expropriated by the state. The construction of the first phase has began in 1987. 4,064 dwellings on 95 ha land were finished in 1990 and additional 670 dwellings were constructed until 1992 (*TOKİ Faaliyet Raporu*, 1995).

The whole site is 953.5 ha with 42,500 dwellings planned to be built on it. The land-use table shows that recreational, educational, social, administrative, commercial uses are allocated in addition to the housing. All of these facilities are distributed among neighborhood units, each having a small centre within walking distance. First phase of

the development has been realized on the southeastern part of the site with 4734 dwellings on 111 ha land (*TOKİ Faaliyet Raporu*, 1995).

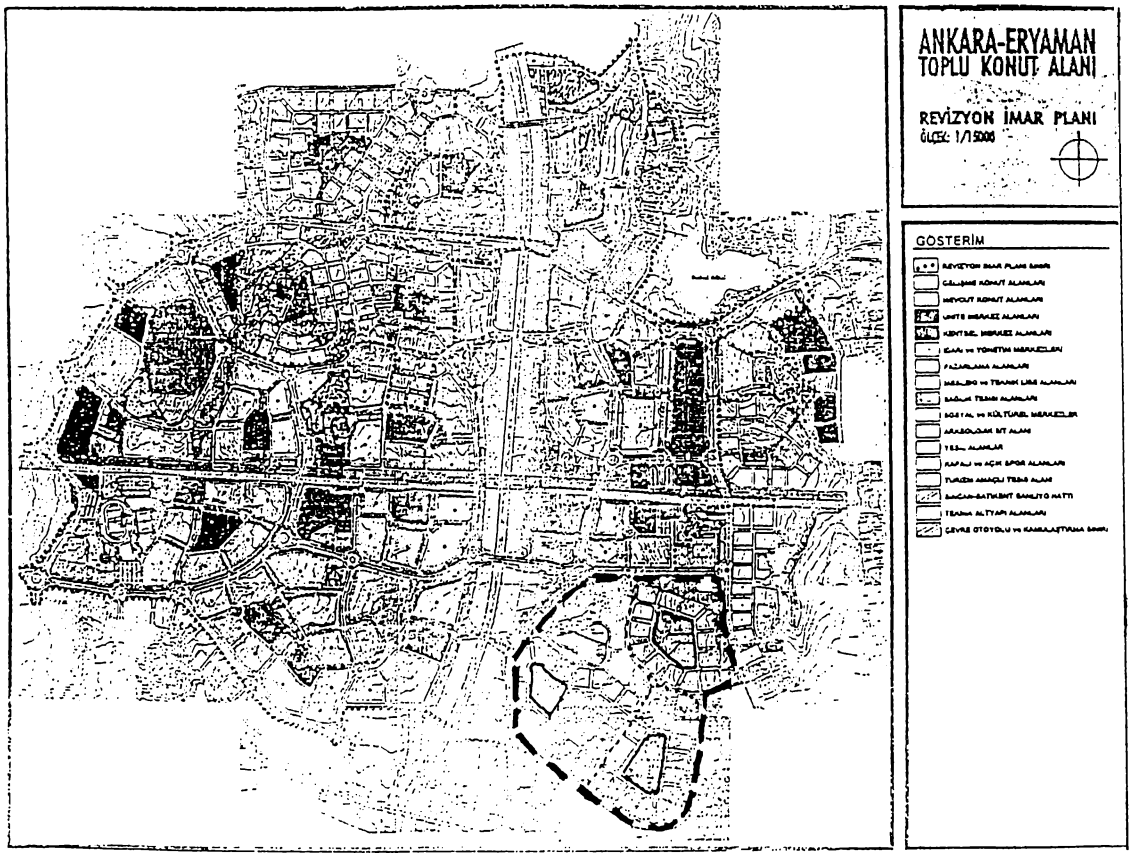

Figure 4.2 Revision Plan (1/5000), *TOKİ Faaliyet Raporu*, (Ankara: TOKİ, 1995).

Table 4.1 Land-use table for the first phase

Land use	**m2**
Housing	361 733
Commerce and social facilities	123 468
Education	39 226
Physical infrastructure	17 146
Administrative and cultural facilities	4 431
Green areas	244 730
Roads and car parks	320 000

Source: *TOKİ Faaliyet Raporu*, (Ankara: TOKİ,1995) 9.

Ankara by-pass highway passes through the settlement in the North-South direction, dividing the settlement into two parts. There is also a project for a suburban railway line connecting the settlement to the city, however, it is not built yet. Therefore, the only connection to city centre is via motorway. It is stated in the activity report (*TOKİ Faaliyet Raporu*, 1995) that a 1/1000 scale proposal composed of 15 neighborhoods has been developed and urban design solutions are set for the next phase. Each of these units contain a primary school, and facilities for commercial and social activities. In addition,

there are three main urban centres serving the whole settlement which include facilities like commercial centres, a cinema, a theatre hall, hotels, restaurants, student dormitories, offices, etc. (*Eryaman Toplu Konut Alanı: 1/1000 Ölçekli Revizyon İmar Planı-Plan Açıklama Raporu*: 1). However, most of them have not been realized yet.

This area has been an example of Mass Housing Districts built by cooperatives which are organized by TOKİ, following the principles of modernist design with apartments and point blocks on vast green open spaces.

4.2 Research Question and Measures

4.2.1 Formulation of the Problem and Research Question

Production of space in new development areas is going to be analyzed based on an assumption that those are the sites of reproduction of a peculiar urban meaning, aesthetic and life.

Building mass-housing areas is one of the ways of city growth. The structures on these sites transfer a peculiar meaning, information. They produce a special kind of aesthetics and provide a corresponding way of life which are the parts of urban environment in the extensions of the city.

As a result, a research question of what sort of an environment and life do these mass-housing districts, as cultural artifacts of the city, provide in the context of societal organization, physical structure and man-environment interaction, has arisen.

4.2.2 Measures Derived from Components of Built Environment

After a literature survey on the components of built environment, some measures have been derived related to new development areas, which are already mentioned in the third chapter of this study. Firstly, the concepts used in the definition of the components of built environment are classified under three main headings: societal relations, physical environment

and man-environment interaction. Later, four measures which are appropriation of space, affordances of the environment, allocation of functions and contributions by inhabitants, made up of those concepts are formed. These measures can be also accepted as the sub-concepts of a desirable environment(Table 4.2).

The first of these measures, 'appropriation of space', depends on the ways of belonging to public spaces, and their use and control. In order to be able to measure it, some spatial and non-spatial indicators which give hints about the appropriation of public spaces have been identified. These indicators are the frequency of the use of public spaces and their definition, like boundaries, transitions in between, and signs and symbols indicated either by the user group or designer, carrying the meaning across and enabling socialization process at the same time.

The second measure is 'affordances of the environment which includes qualifications of the environment to

satisfy human needs, to accommodate both individuation and socialization within a hierarchy and variety of spaces transposing a peculiar meaning and aesthetics. Therefore the indicators are the type of use of public spaces, existence of the different types of public and private uses, existence different types of visual elements, textures, etc., and legibility of the built environment.

The third one is 'allocation of functions' which examines the functional structure of the environment in terms of density, specialization and co-existence of different land uses on the space as well as synomorphy between milieu and behavior. The indicators are the co-existence of different land-uses, provision of specialized services, harmony between physical structure of the environment and behavioral patterns, and density of the built environment.

The last measure is 'contributions by the inhabitants' which means the involvement of inhabitants within both design and post-occupancy

periods of a pre-planned environment and all kinds of contributions by them. The indicators are whether the participation channels are open to everyone and whether it is possible for them to make any changes or additions.

Table 4.2 Measures and spatial and non-spatial indicators

Measures	Content	(Spatial) Indicators
Appropriation of Space	• privateness/publicness and familism • territoriality • level and type of control	• frequency of the use of public spaces • boundaries • passages • signs and symbols
Affordances of the Environment	• satisfaction of human needs • individualization/ socialization • hierarchy of spaces • variety/monotony • meaning • aesthetics	• type of the use of public spaces • existence of different types of public and private uses • existence of the different types of visual elements, textures, etc. • legibility of the structures
Allocation of Functions	• zoning/integration • specialization • milieu/behavior synomorphy density	• co-existence of different land-uses • existence of specialized services • environment and patterns of behavior • density of the built structure
• **Contribution by inhabitants**	• level and type of participation • pre-planned/ accumulated	• participation channels • possibilities for additions

4.2.3 Relations among Variables

There should be some concepts that lead to 'satisfaction by design of the environment'. These are expected to be variety in terms of visual stimuli, legibility of the built structure, adequacy of open spaces and density of built environment, satisfaction of aesthetic and cognitive needs, and hierarchy among spaces in terms of privacy. In addition, there can be some other reasons beyond physical properties of the environment that effect satisfaction, such as period of living there, home ownership, type of previous neighborhood and amount of time spent in the area weekly.

Similarly, components of 'satisfaction by functional organization' are discussed. Legibility of built environment, affiliation, self-actualization and cognition needs can be parts of it in addition to non-physical properties like period of living there, home ownership, type of previous neighborhood, and again, amount of time spent there in a week.

Hence, in order to measure satisfaction by spatial and functional organization, as defined in terms of the above mentioned concepts, relations between those variables have been investigated.

On the other hand, variables, such as variety, legibility, density, and those related with the human needs including safety, affiliation, esteem, self-actualization, aesthetic and cognitive ones, are also going to be studied by conducting a factor analysis of these variables. This is expected to lead to the identification and discussion of some new concepts derived from evaluations of the environment.

4.2.4 Housing Types as Determinants in the Use and Evaluation of Spaces

With the idea that the typology of the residences might have influence on the inhabitants' evaluation of the environment, the sample is divided into three major groups in terms of housing types existing on the site: point blocks, apartment houses and duplex

row houses (Figure 4.3). It is also expected that there would be some different uses of immediate environment resulted by the site plans and housing types. Therefore, variables related to immediate surroundings, such as use and definition of spaces and spare time activities, are discussed within this context.

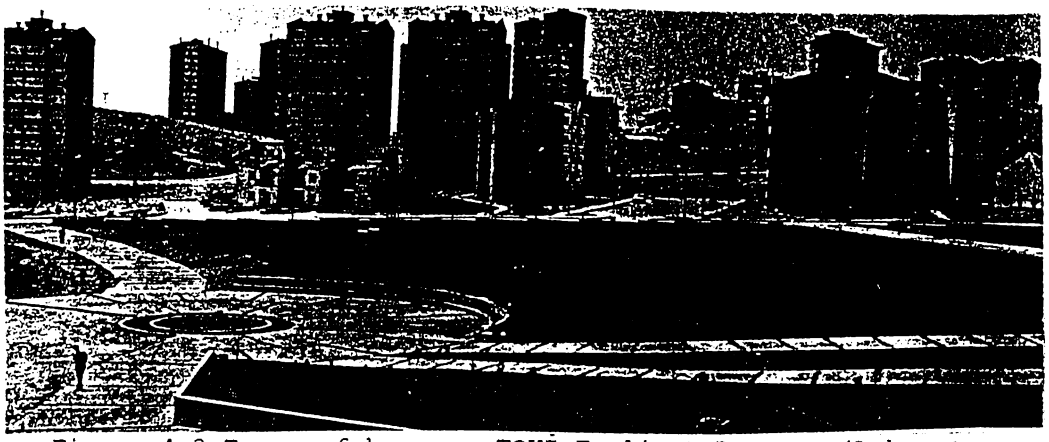

Figure 4.3 Types of houses, *TOKİ Faaliyet Raporu*, (Ankara: TOKİ, 1995)

4.3 Method Of The Study

A questionnaire that consists of two main parts was prepared and applied among the inhabitants in a new development area, Eryaman Mass Housing District. It was mainly a post-occupancy evaluation investigating the satisfaction of inhabitants with the spatial and functional organization of the site; the use of some

sub-spaces, such as gardens, streets, playgrounds, sports areas, shopping centre, etc.; the definition of those spaces; how the physical elements and the environment are perceived; the hierarchy of spaces in terms of privacy and collectivity; provided facilities; and the efficiency of contribution channels.

The first part of the questionnaire includes some questions to describe the socio-economic profile of the sample group. The second part is about the behavioral patterns of inhabitants, their perception of physical environment, facilities in the settlement, and residents' contributions in the environment.

A sample of 60 subjects has been chosen by means of stratified sampling[1]. That is, these 60 subjects were spread homogeneously on the site, as well as being classified according to the types of the houses: 30, 24 and 6 of the questionnaire are applied to

[1] When selecting a stratified sample, the researcher divides the population into strata according to a criterion which is relevant to the issue (Bryman and Cramer, 1990: 100, 101)

apartment houses (A), point blocks (B) and duplex row houses (C) respectively (Figure 4.4).

Figure 4.4 Distribution of the sample group on the site plan

Collected data is mostly nominal, which has the property of identity, in addition to evaluation table of the environment consisting of ordinal data. Therefore, only non-parametric statistical analysis can be applied to the data collected. The size of the sample group, which is greater than 20, is also appropriate to apply Chi-square test (Drew and Hardman, 1985:252-255).

4.4 Results of the Study

4.4.1 Characteristics of the Sample

First of all, the general characteristics of the sample group are extracted as the result of the first part of the questionnaire, which is mostly about demographic and socio-economic features of the inhabitants.

The size of the sample group is 60; 60 percent female, and 40 percent male (Table C.1 in appendix C). Most (65%) of the subjects are between 26 and 55 years old; 31.7% of the sample is between 15-25 and 3.3% is older than 56 (Table C.2 in appendix C).

51.7 percent of the group studied graduated from high school; 37.9 percent from university and the remaining group either from primary (8.6%) or secondary schools (1.7%) (Table C.3 in appendix C).

Housewives were the most frequently interviewed group, with a percentage of 33.3. In the second order are there employees (25%); then the students(16.7%) and private entrepreneurs (13.3%), retired people (10%); lastly blue-collars (1.7%) (Table C.4 in appendix C).

Average income is around 30 Million TL; the most frequently seen range is between 30-and 50 Million TL (48.3%). It can be said that the area house middle income group (Table C.5 in appendix C).

The average family size is 3.2, whereas families are most frequently (33.3%) composed of 3 members (Table C.6 in appendix C).

Car ownership ratio is quite high with a percentage of 56.7. More than the half of the families in the sample have at least one automobile (Table C.7 in appendix C).

Most of the houses are rented (53.3%), although they are built as privately owned houses. There is also an amount (13.3%) of lodgements (Table C.8 in appendix C).

In sum, the sample is mostly composed of adults between
26 and 55; 60 percent of them are female; a larger amount of them (51.7%) are high-school graduates; most of the interviewees were housewives (33.3%); the average income is around 30 Million T.L. per family with an average size of 3.2 persons per household. 56.7 percent of them own a car; and most of the houses (53.3%) are rented.

4.4.2 Characteristics of Physical Environment and Man-Environment Interaction

Having defined the socio-economic profile of the sample, answers to the detailed questions on the use of space, its perception, satisfaction of human needs and involvement in design and post-occupancy periods, are studied.

4.4.2.1 Appropriation of Space

Components and Indicators: As already stated, components of appropriation of space are publicness, territoriality and control of space. Hence, it can be argued that outdoor spaces can be appropriated if there is publicness instead of familism; if the spaces are well-defined by means of boundaries, the passages between them; and signs and symbols marking the space.

Questions and Responses: Spare-time activities of inhabitants on the site are mostly family-based (56.7%), i.e. they spent their time either at home or

they visit their friends (Table 4.3). Other activities that take place on open public spaces, such as sports, park visits, walking, etc. are stated only by 36.7 percent of the sample group. The most frequently used (31%) space in the first order is shopping centre, the most frequently used space in the second and third orders is again shopping centre with 22.9% and 34.7% share among other spaces, respectively (Table 4.4).

This may indicate that the environment is very poor in providing different opportunities in terms of social and cultural facilities. There is no place for people to share anything except the act of shopping. In addition, although there exist some other quite specialized services within the first floors apartment blocks or in duplex houses, such as coiffeurs, private education and health institutions, kindergartens, etc., the respondents did not even mention them. Except for these, there are also schools, health centres that are planned at the design stage and space is allocated for them within the neighborhood units. However, they are not also

mentioned by the subjects during the questionnaire. Therefore, it can be concluded that people mention the facilities if they are already named and assigned a place, and if the space allocated for such facilities are well defined, such as the massive shopping centre building.

Table 4.3 spare time activities (VAR16)

Value Label	Value	Valid Percent
family-based activities	**1**	**56.7**
private open space	2	5.0
public open space	10	36.7
others	20	1.7
Total		100.0

Table 4.4 Frequency of the use of spaces

	VAR12 spaces used in the first order		VAR13 spaces used in the second order	VAR14 spaces used in the third order
Value Label	Value	Valid Percent	Valid Percent	Valid Percent
frontyard	0	16.9	5.3	1.9
backyard	1	6.8	12.3	
street	2	3.4	1.8	5.6
car parks	4	13.6	8.8	11.1
playgrounds	5	15.3	12.3	9.3
sports areas	6	3.4	7.0	18.5
shopping centre	**7**	**30.5**	**19.3**	**31.5**
market place	8	5.1	14.0	11.1
mosque	10		3.5	1.9
others	11	1.7		
kiosks	12	3.4	15.8	9.3
Total		100.0	100.0	100.0

During the study on site, interviews were asked to define some sub-spaces in the environment. They preferred to define them by means of either their directional location, usage or names, instead of referring any qualitative characteristic of the spaces like their boundaries, entrances and passages, or signs and symbols. The question was where those sub-spaces are and what sort of places they are. Subjects were asked to define the spaces. The most frequently observed response is direction, in definitions of front-yard, back-yard, street, sports areas, car parks and play grounds. Front- and back-yards are defined by referring to the entrances of the buildings. Definitions of streets are related to their use because of the mixed use of car parking and streets in some isles. 54.5 percent and 27.3 percent of the subjects have defined the square using words related to direction and location in relation to another space, respectively. It is interesting that they refer to the open spaces within building isles as squares. Again, sports areas are defined with their directional locations and uses. There are very few responses that give information about the spatial

characteristics, like the boundaries of sports areas and some elements in them. In addition, shopping centre, market place and mosque are defined by means of other key words referring to the distance, or other reference points or spaces, and their locations, such as 'in the centre', 'in the middle', 'at the end of the street', etc. They also quite often use 'building isle', although it is a word used in professional planning and design terminology (Table 4.5).

Table 4.5 Definition of spaces

		VAR18 front-yard	VAR21 back-yard	VAR24 street	VAR27 square	VAR30 sports areas
Value Label	Value	Valid Percent	Valid Percent	Valid Percent	Valid Percent	Valid Percent
boundary	0		6.3			2.6
symbol	2					2.6
direction	3	65.2	53.1	35.1	9.1	43.6
usage	4	32.6	37.5	32.4	54.5	33.3
name				29.7	9.1	5.1
others	6	2.2	3.1	2.7	27.3	12.8
Total		100.0	100.0	100.0	100.0	100.0

		VAR33 car parks	VAR36 playground	VAR39 shopping centre	VAR42 market place	VAR45 mosque
Value Label	Value	Valid Percent	Valid Percent	Valid Percent	Valid Percent	Valid Percent
boundary	0					
symbol	2					
direction	3	78.7	76.9	35.3	9.4	27.7
usage	4	6.4	5.8		1.9	
name				27.5	15.1	12.8
others	6	14.9	17.3	37.3	73.6	59.6
Total		100.0	100.0	100.0	100.0	100.0

4.4.2.2 Affordances of the Environment

Components and Indicators: Affordances of the environment, include the ability to satisfy human

needs, to enable socialization processes, and to provide hierarchy of spaces and variety, to transpose meaning and aesthetically values. The environment can be satisfactory in terms of affordances if it provides multi-functional uses of public spaces, a variety and hierarchy among the private and public spaces, in addition to enriched visual stimuli and legibility.

Questions and Responses: In the questionnaire, the interviewees were asked to mention the spaces on the way from their houses to the shopping centre, a public space, in order to examine whether they experience any change in the degree of privacy and passages from one to another. 62.7% of the responses were not hierarchical in terms of public and private spaces (Table 4.6). Most of them have described their routes without any change in the degree of privacy.

Table 4.6 Hierarchy between spaces (VAR59)

Value Label	Value	Valid Percent
not hierarchical	**0**	**62.7**
hierarchical	1	37.3
Total		100.0

Responses indicate that the environment is evaluated to a high percent at the lowest level of variety (46.7%), and mostly legible (65.5%) in terms of visual stimuli of the built environment (Table 4.7). Although lack of variety results in disorientation (Lozano, 1992: 401-403), here, the environment is considered to be highly legible despite the low level of variety.

Table 4.7 Variety and legibility

		VAR47 variety	VAR48 legibility
Value Label	Value	Valid Percent	Valid Percent
the most	1	23.3	**65.5**
more	2	5.0	3.4
medium	3	18.3	20.7
low/less	4	6.7	3.4
the lowest/ the least	**5**	**46.7**	6.9
Total		100.0	100.0

People were asked to evaluate their environments based on some concepts related to the satisfaction of human needs, such as safety, esteem, affiliation, self-actualization, aesthetic and cognitive needs. These were changed into some adjective pairs, such as

beautiful/ugly, lively/boring, orderly/chaotic, etc., inspite of the risk of oversimplification of the concepts. The capacity of the environment to enable social interaction (VAR53) is most frequently judged to be at the lowest level (35.0%), which can be related to the affiliation need. The average opinion is that the environment encourages social relations at the medium level. Subjects' evaluation of the environment in terms of liveliness (VAR56) is mostly at the medium level(35.0%). However, the environment is regarded to be at the highest level in terms of aesthetical evaluation (aesthetical needs)(VAR57), order (cognitive needs)(VAR58), expectancy of development (esteem needs)(VAR93), and safety (VAR92)(Table 4.8).

Table 4.8 Satisfaction of needs

		VAR53 satisfaction of affiliation needs	VAR56 satisfaction of self actualization need	VAR57 satisfaction of aesthetics needs	VAR58 satisfaction of cognition need	VAR93 satisfaction of esteem needs	VAR92 satisfaction of safety needs
Value Label	Value	Valid Percent	Valid Percent	Valid Percent	Valid Percent	Valid Percent	Valid Percen
the most	1	25.0	23.3	60.0	78.3	48.34	78.33
more	2	11.7	8.3	15.0	11.7	10.0	18.33
medium	3	23.3	35.0	21.7	8.3	18.33	3.34
low/less	4	5.0	1.7	1.7	1.7	3.33	
the lowest/ the least	5	35.0	31.7	1.7		20.0	
Total		100.0	100.0	100.0	100.0	100.0	100.0
		Mean: 3.133 Mode:5.000	Mean: 3.100 Mode: 3.000	Mean: 1.700 Mode: 1.000	Mean: 1.333 Mode: 1.000	Mean: 2.408 Mode: 1.000	Mean: 1.358 Mode: 1.000

4.4.2.3 Allocation of Functions

Components and Indicators: It can be argued that the quality of space is high if specialized services and different land-uses exist together; if the environment and behavioral patterns are similar in structure and if there is an optimum density of the built structure.

Questions and Responses: In accordance with the observations on the site, it is also stated by the inhabitants that there are no different land-uses or specialized services except for daily or weekly shopping. Some of the facilities are completely lacking, such as social, cultural and entertainment ones. Some of them are not mentioned, although they exist in the site, for example, sports, education and health. The only most frequently observed facility is daily shopping (Table 4.9).

Table 4.9 Existence of facilities

	daily shopping	wholesale shopping	cultural fac.	entertainment fac.	recreational fac.	sports fac.	education	health	social fac.
value label	valid percent	valid percent	valid percent	valid percent	valid percent	valid percent	valid percent	valid percent	valid percent
lacking	1.7	83.3	100.0	100.0	48.3	61.7	86.7	58.3	93.3
existing	3.4	6.7			11.7	8.3	3.3	1.7	
existing random	39.0				15.0	11.7		8.3	6.7
existing situated	55.9	10.0			25.0	18.3	10.0	31.7	
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

It was expected that there is a mismatch between the behavior and milieu, because, although everything was pre-planned and designed, there are ad hoc changes in some of the spaces and functions. There are playgrounds but children play in the parking lots; cars are parked along the streets; some of the units in the shopping centre are empty but there are lots of small kiosks on the street; there are some commercial uses within the apartments, etc. However, it was not possible to collect sufficient data about this situation during the field study, since people have not mentioned any of these places and random behavior in terms of their utilization.

The net density of the whole site is 594.82 persons/ha; the gross density is 170.71 persons/ha

(*TOKİ Faaliyet Raporu*, 1995: 7). Satisfaction of the inhabitants by the density of built environment was asked. The responses show that people are mostly satisfied by both the density of the built environment and the amount of open spaces (Table 4.10).

Table 4.10 Density of the environment

		VAR49 adequacy of open spaces	VAR50 satisfaction by the density of built str
Value Label	Value	Valid Percent	Valid Percent
the most	**1**	**84.7**	**75.0**
more	2	3.4	13.3
medium	3	1.7	6.7
low/less	4	1.7	
the lowest/ the least	5	8.5	5.0
Total		100.0	100.0

4.4.2.4 Contributions by Inhabitants

Components and Indicators: Except for formal organizations for the participation of inhabitants, their contribution to the environment is possible if additions and changes are permitted both in design

and post occupancy periods and if the participation channels are open to everyone.

Questions and Responses: Here, participation channels are open. 86.7% of the sample knows whom they can apply in any case of dissatisfaction related to the environment (Table 4.11). However, they do not feel that they are involved in the changes. 49.2% of them mentioned that there are changes in the environment but they do not take part in it (Table 4.12).

They are already aware that they can not make any functional changes and additions due to the restrictions (60.7% and 57.6%)(Table 4.13).

Table 4.11 contributions (VAR73)

		VAR74 participation (environment)	VAR75 participation (house&immediate environment)
Value Label	Value	Valid Percent	Valid Percent
yes	**0**	**86.7**	**91.7**
no	1	6.7	6.7
no idea	2	6.7	1.7
Total		100.0	100.0

Table 4.12 participation

Value Label	Value	Valid Percent
no	1	32.2
no idea	2	8.5
yes/yes	11	10.2
yes/no	**12**	**49.2**
Total		100.0

Table 4.13 Additions and changes

		VAR77 additions to house	VAR78 functional changes
Value Label	Value	Valid Percent	Valid Percent
yes	0	6.8	7.1
no need	1	35.6	32.1
no permission	**2**	**57.6**	**60.7**
Total		100.0	100.0

4.4.3 Results derived from Relations among Variables

4.4.3.1 Satisfaction by the Spatial and Functional Organization

Having explored relationship among some variables which can be related to the satisfaction by both spatial and functional organization, the only meaningful relations have been found between the

responses to satisfaction by design (VAR11) and aesthetical evaluation (VAR57); and between satisfaction by functional organization(VAR60) and capacity of enabling social relations in the environment that can be conceptualized as the affiliation need (VAR53). In order to investigate whether there is a significant relationship between the two variables χ^2contingency test has been applied[2].

Although it was expected that there were significant relations between the variables of satisfaction by design and variety, legibility, adequacy of open spaces, density of the built structure, cognitive needs, hierarchy between spaces, duration of living there, house ownership, previous neighborhood, time spent there weekly, only the aesthetical evaluation of the environment had a valid significance level (Appendix C). Chi-square value of the sample is higher than tabular value at the df 8 and .001 level ($\chi^2 = 26.7702 > \chi^2_{8,0.001}=26.125$)(Blalock, 1960:

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[2] For a significance level of .05: if the sample X^2 < the tabular value for (K-1) (R-1)df , we accept H_0 . If the sample X^2 > the tabular value for (K-1) (R-1)df, we reject H_0 (Bernstein, 1964: 23, 24)

452). So, the null hypothesis of independence between the satisfaction by design and aesthetical evaluation is rejected. We can conclude that the variables in the cross-tabulation are related at 8 degree of freedom at the .001 level.

According to the cross-tabulation, we can state that people who referred to the highest degree in the range of aesthetical evaluation are also mostly (63.9%) satisfied by the design of the environment (Table 4.14).

Table 4.14 Satisfaction by design (VAR11) by satisfaction of aesthetics needs (VAR57)

Count Exp Val Col Pct		VAR57					
		the most 1	more 2	medium 3	low/less 4	the lowest/the 5	Row Total
VAR11	yes.good 0	23 15.6 63.9%	0 3.9 .0%	3 5.6 23.1%	0 .4 .0%	0 .4 .0%	26 43.3%
	medium 1	11 15.6 30.6%	8 3.9 88.9%	6 5.6 46.2%	1 .4 100.0%	1 .4 .0%	26 43.3%
	no.bad 2	2 4.8 5.6%	1 1.2 11.1%	4 1.7 30.8%	0 .1 .0%	1 .1 100.0%	8 13.3%
	Column Total	36 60.0%	9 15.0%	13 21.7%	1 1.7%	1 1.7%	60 100 .0%

Chi-Square	Value	DF	Significance
Pearson	26.77022	8	.00077

In addition, relations between satisfaction by functional organization and legibility, self-actualization need, cognitive needs, time of living there, house ownership, previous neighborhood, and time spent there have been examined. Among these, only the relation between the satisfaction by functional organization (VAR60) and that of affiliation need (VAR53) was significant (Appendix C). Chi-square value of the sample is higher than tabular value at the df 8 and .05 level (χ^2= 17.39243 > $\chi^2_{8,0.05}$=15.507) (Blalock, 1960: 452). So, the null hypothesis of independence between satisfaction by functional organization and ability to conduct social relations, i.e. affiliation need is rejected. It can be concluded that the variables in the cross-tabulation are related at 8 degree of freedom at the .05 level (Table 4.15).

According to the cross-tabulation, it can be concluded that satisfaction by functional organization is directly related with the satisfaction of affiliation need. Thus judgments of

organization is directly related with the satisfaction of affiliation need. Thus judgments of the subjects about the functional organization are positive if the environment enables social interaction.

Table 4.15 satisfaction by functional organization (VAR60) by satisfaction of the affiliation needs (VAR53)

Count Exp Val Col Pct		VAR53					
		the most 1	more 2	medium 3	low/less 4	the lowest 5	Row Total
VAR60	yes 0	9 7.5 60.0%	4 3.5 57.1%	11 7.0 78.6%	2 1.5 66.7%	4 10.5 19.0%	30 50.0%
	medium 1	5 5.8 33.3%	3 2.7 42.9%	3 5.4 21.4%	1 1.2 33.3%	11 8.1 52.4%	23 38.3%
	no 2	1 1.8 6.7%	0 .8 .0%	0 1.6 .0%	0 .4 .0%	6 2.5 28.6%	7 11.7%
	Column Total	15 25.0%	7 11.7%	14 23.3%	3 5.0%	21 35.0%	60 100.0%

Chi-Square	Value	DF	Significance
Pearson	17.39243	8	.02627

4.4.3.2 General Evaluation of the Environment and New Concepts

In order to identify and discuss any new concepts about the evaluation of the environment, a factor analysis of selected variables is conducted. As the result of this factor analysis four additional

concepts have been derived. Those four factors are defined according to the variables that constitute the factors (Table 4.16).

Variety, legibility, and other variables related with affiliation, esteem, self-actualization and aesthetic needs constitute the first one of these factors. Therefore the concept has a socially and spatially dynamic, lively, and active meaning. It includes dynamism and liveliness in terms of both spatial features and social life, in addition to aspiration for change, development and beauty.

The second factor, on the other hand, consists of variables such as adequacy of open spaces, density, safety, aesthetics and order. So, it defines a more quiet and stable environment in terms of physical entities. Stability in the environment including adequate open spaces and appropriate density; and providing sense of safety and orderliness are the underlying concepts behind this factor.

The third one includes safety and development, i.e. esteem need, while variables of liveliness, adequacy of open spaces, illumination, ability to conduct social relations and order have negative roles. As a result, this factor refers to safety, security and expectancy in terms of development and growth. It is composed of expectancies for future development and feeling of security.

Lastly, the fourth factor is composed of aspiration for change, aesthetics and order in the positive sense, and variety, legibility, density, and liveliness, i.e. self-actualization, in the negative sense. It is composed of spatial factors like aesthetical values and order which are important criteria in the evaluation of environment, in addition to the hope for change in the future.

Table 4.16 Factor Matrix

	Factor 1	Factor 2	Factor 3	Factor 4
VAR47	.67460	-.12163	.08832	-.25867
VAR48	.46578	.33341	.13084	-.56599
VAR49	-.05003	.69538	-.14075	-.41329
VAR50	-.19645	.79963	.34542	-.01695
VAR51	-.25168	.67031	.42882	.16728
VAR52	.09792	.42047	-.64894	.12666
VAR53	.62905	.03906	-.47871	.03745
VAR54	.59935	-.11636	.42238	.29648
VAR55	.77764	-.09380	.25557	.12989
VAR56	.64452	.15161	-.06316	-.25031
VAR57	.53957	.34964	.09409	.43116
VAR58	.15587	.49980	-.31474	.45062

4.4.4 Effects of Housing Types on the Use and Evaluation of Space

Frequency of the spaces used in the first order differ according to housing types. While interviewees who live in apartment houses refer to both the front garden and shopping centre, those who live in point blocks and duplex houses refer to shopping centre and car parks, which is their front garden at the same time (Table E.1 in appendix E).

Public spaces that are used in the second order, most frequently, are the market place, kiosks and back yards for the inhabitants in apartments, point blocks and duplex houses respectively (Table E.2 in appendix E).

Spaces used in the third order are shopping centre for the interviewees in apartments and duplex houses, whereas that for interviewees in point blocks is sports areas (Table E.3 in appendix E).

The responses to the question related to spare time activities do not differ sharply according to housing types (Table E.4 in appendix E). Activities are mostly family based, i.e. the respondents state that they stay either at home or visit their friends in their spare time spent on the site. Most frequently used space by the inhabitants of point blocks are public open spaces, however the percentages between the response of family based activities and public open spaces are not very different.

There is an interesting difference in definition of square by different types of houses. Apartments are located in an isle creating a common space between them. Therefore people living there call these spaces as square, although they are not so definitely designed. However, there are play grounds in these areas. Such a facility enable people to perceive, use and define the space (Table E.5 in appendix E).

4.5 Discussion

With respect to the concept of appropriation of space, it can be concluded that public open spaces are not used densely; they are not appropriated. The most frequently used public space is the shopping centre. Immediate surroundings of the houses and facilities located there, such as frontyards, backyards, play grounds and car parks, are appropriated relatively more. Due to the common spaces created within the building isles and the playgrounds located there, these spaces are appropriated and frequently used. However, most of the other places are not perceived and named by their spatial characteristics.

There is a functional hierarchy as a result of the use of neighborhood units. Hence, there is no spatial hierarchy based on the use and privacy of open spaces, such as a private garden, a courtyard, a street, a main road, a central place, a square. The space mostly consists of residential units, such as house inside building isles which also has car parks,

play grounds, and the neighborhood centre with shopping mall and sports facilities, educational and recreational facilities, all of which represent a hierarchy of functions.

The environment provides limited social interaction and liveliness. On the other hand, it responds to the demands and expectancies for aesthetics, cognition, development and safety at the highest level.

There are no specialized services, cultural and recreational facilities. Therefore, inhabitants are highly dependent on the city centre, which causes the district to become a dormitory town.

There already exists a formal organization in order to enable the participation of inhabitants to the decision making processes about the environment. Most of the people are aware of it, that is participation channels are open to everyone. However, this does not enable them to have direct contact with the environment and to share anything with other inhabitants. This process of participation can not

result in contributions to the environment, such as marking and appropriation of space.

As a result, one can conclude that Mass-Housing Development area in Eryaman mostly does not provide a desirable living environment in terms of the sub-concepts introduced here, that is, the appropriation of space, affordances of the environment, allocation of functions and contributions by inhabitants.

5 CONCLUSION

The aim of the study is to develop and discuss some concepts different from those valid now in the production of housing districts. It is not a concrete proposal of guidelines or a checklist, but rather a discussion on some concepts related to livable environments.

It is observed during this study that livable places could not be created in Eryaman Mass Housing District, and spatial quality is low in this example where houses are produced in large numbers in order to respond housing demand and control urban growth.

5.1 Characteristics of Mass Housing Districts (MHDs)

MHDs are mostly shaped according to the design idea of neighborhood planning, which is based on functional zoning and traffic segregation, as well as hierarchy of functions, such as educational institutions, commercial uses, etc. Apartment houses and point blocks on a vast land are the spatial indicators of progressist design principles proposing a continuity of voids instead of solids within a high-rise/low-density environment. They are artificial environments without having a common image came out from their own historical background and spatial accumulation.

The environment does not provide variety and hierarchy between the private and public spaces in Eryaman. There are neither well defined boundaries and passages between spaces nor the possibility for personalization of common spaces.

It was seen in Eryaman that there are not any cultural and social facilities and the environment

mostly does not encourage random behavior and enables limited social interaction for inhabitants. There are not any communal spaces, although it is expected that there should be some shared facilities due to the realization process by means of the cooperatives. Actually these cooperatives are not really local initiatives.

On the other hand, the site is well-designed in terms of aesthetical evaluation expressed by the inhabitants due to the indicators of orderliness, emptiness, cleanness and having green areas.

Eryaman is mostly dependent to the city centre due to the lack of specialized services. So MHDs are only dormitory towns, unless self-sufficient centre with all kinds of facilities responding to the demands of inhabitants is created.

The production process and the management in post-occupancy period do not enable the involvement all the inhabitants in decision making processes. Especially in the design period, although the

production was initiated by the cooperatives, participation by inhabitants is not always possible. In addition, the opportunity to make additions is not permitted, which could have resulted in some kind of an accumulation of signs and symbols and the appropriation of places.

5.2 Modernity and the Change in the Meaning of the House

Modernity introduced the idea of developments placed on empty areas. Thus, without being products of spatial and historical accumulation, they are produced by means of rational decision processes.

MHD are spaces of modern planning and design promoted as tool for the control of the urban growth based on functional segregation. The original design idea is to create small, simple units based on some basic functions provided within walking distance on empty, clean and well-ordered spaces.

Furthermore, the meaning of the house as a life-ground, a living space, has changed to a rent-source due to the commercialization of the house. Therefore, mass houses built in Turkey since 1980s are investments for collecting rent and housing stock for middle income families. They are better in environmental quality compared to the districts built by small-scale constructors with limited capital. The only reason of preferences of living in MHDs is not affordability of these housing districts for middle income group, but also provision of a peculiar life-style different from other districts of the city. This can be argued to have its roots in the modernization project of Turkish Republic, trying to create a national bourgeoisie and westernized way of life by supporting cooperatives and such kinds of developments.

5.3 Ideal Settlement - Desirable/Livable Environments

With respect to the sub-concepts discussed in this study and ideal settlement can be defined as follows:

- The space should be determined, changed and appropriated by the inhabitants.

- The environment should enable the interaction between people and built environment; people and the society via environment; and that between the society and the space in various ways.

- There should be the possibility to experience both individualization and socialization in widely used common public spaces.

- Different uses should exist together providing varieties for random behaviors, as well as hierarchy among private and public uses.

- Accumulation of elements on space should be preferred instead of pre-planned and pre-determined sterilized spaces. Thus, building in phases and involvement of the residents in various stages of realization process is suggested.

5.4 Pre-Planned New Settlements

Then, in new development areas, which are pre-planned settlements, the questions of 'what sort of environments should be created' and 'what sort of organizations, cooperatives, and initiatives should be established', arise.

It can be stated that everything should not be necessarily pre-planned and designed. There should be possibilities for additions, changes and random uses. There can be some simple structures like a skeleton providing variety of uses and random behaviors, as well as richness and co-existence of different functions and uses of spaces. Hierarchy among privacy and publicness should be established by means of physical elements defining sub-spaces, boundaries, passages between them.

The environment should provide possibilities its inhabitants to appropriate the space. People could be involved in all stages of realization process. The space should enable to experience variety and

hierarchy in terms privacy for the inhabitants, as well as an optimum level of legibility and variety in visual stimuli. In addition, different uses responding all the demands of people should exist together in order to establish a self-sufficient settlement and livable environment.

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APPENDICES

APPENDIX A

QUESTIONNAIRE SHEET

1. Cinsiyet (var1)

☐ Kadın ☐ Erkek

2. Yaş (var2)

☐ 0-14 ☐ 15-25 ☐ 26-55 ☐ 56+

3. En son mezun olduğunuz okul (var3)

☐ ilkokul ☐ ortaokul ☐ lise ve dengi ☐ üniversite

4. Çalışıyor musunuz? (var4)

Hayır		Evet	
☐	evhanımı	☐	serbest
☐	emekli	☐	memur
☐	öğrenci	☐	işçi
☐	diğer	☐	diğer

5. Ailenin aylık geliri (var5)

☐ -10 000 000 TL
☐ 10 000 000-30 000 000 TL
☐ 30 000 000-50 000 000 TL
☐ 50 000 000- TL

6. Ailenizde kaç kişi var? (var6)

7. Özel aracınız var mı? (var7)

☐ Hayır ☐ Evet Kaç tane?

8. Oturduğunuz ev (var8)

☐ sizin ☐ kira ☐ lojman ☐ diğer

9. Daha önce nerede oturuyordunuz? (var9)

II.1. Ne kadar süredir burada oturuyorsunuz ? (var10)

2. Oturduğunuz çevrenin düzenlenişinden memnun musunuz? (var11)

☐ Evet.İyi ☐ Kısmen.Orta ☐ Hayır.Kötü

3.Hangi alanları daha çok kullanıyorsunuz?En çok kullandığınız ilk üç alanı işaretleyiniz. (1st: var12, 2nd:var13,3rd: var14)

☐ ön bahçenizi
☐ arka bahçenizi
☐ sokağınızı
☐ meydanınızı
☐ otoparkınızı
☐ çocuk bahçelerini
☐ spor alanlarını
☐ alışveriş merkezini
☐ pazar yerini
☐ büfeleri
☐ camii
☐ diğer

4. Zamanınızın ne kadarını bu çevrede geçiriyorsunuz? (var15)

☐ hergün tüm gün ☐ hafta içi tüm gün ☐ hafta içi akşamları ve hafta sonu ☐ diğ

5. Burada geçirdiğiniz vakitlerde neler yapıyorsunuz? (var16)

☐ evde oturuyorum
☐ arkadaşlarımı ziyaret ediyorum
☐ bahçe ile ilgileniyorum
☐ bisiklete biniyorum
☐ spor yapıyorum
☐ yürüyüşe çıkıyorum
☐ parka gidiyorum
☐ kahvehaneye gidiyorum
☐ klüp, dernek, vs. gidiyorum
☐ alışverişe gidiyorum
☐ diğer

6.Oturduğunuz çevrede aşağıdakilerden hangileri var? Kullanıyor musunuz?Başka Kimler Kullanıyor?Neresi; nasıl bir yer? Kısaca tarif eder misiniz? (var17-var46)

	varlığı VAR MI?		tanımı NERESİ?	kullanımı KİMLER KULLANIYOR?
	-	+	Sınır/Giriş/Sembol	pri/pub/s-p BİZ/HERKES/.....
ön bahçeniz				
arka bahçeniz				
sokağınız				
meydanınız				
spor alanınız				
otoparkınız				
çocuk bahçeleriniz				
alışveriş merkeziniz				
pazar yeriniz				
caminiz				

7. Oturduğunuz çevreyi değerlendirmeniz gerekise...

		1	2	3	4	5	
çeşitli/değişik	var47						monoton
yönlendirici	var48						kargaşık
açık alanlar yeterli	var49						yetersiz
tenha	var50						kalabalık
güvenli	var51						tehlikeli
iyi aydınlatılmış	var52						kötü aydınlatılmış
sosyal ilişkilere imkan veriyor	var53						sosyal ilişkilere imkan vermiyor
değişebilir	var54						değişmez
gelişebilir	var55						gelişmez
canlı	var56						sıkıcı
güzel	var57						çirkin
düzenli	var58						karışık

8. Evden çıkıp alışveriş merkezine giderken nerelerden geçiyorsunuz? (var59)

9.Bu çevredeki işlevlerin düzenlenişinden memun musunuz? (var60)

[0] Evet [1] Kısmen [2] Hayır

10. Her türlü ihtiyacınızı bu çevrede karşılayabiliyor musunuz? (var61)

[ ] Evet [ ] Kısmen [ ] Hayır

11.Hayır ya da kısmen ise...Çevrenizde uzmanlaşmış hizmetlerin eksikliğini duyuyorsunuz? (var62)

[0] Evet [1] Hayır

12.Ne tür ihtiyaçlarınızı oturduğunuz çevrede karşılayabiliyorsunuz?

		Nerede
	gündelik alışveriş	(var63)
	toptan alışveriş	(var64)
	kültür	(var65)
	eğlence	(var66)
	dinlenme	(var67)
	spor	(var68)
	eğitim	(var69)
	sağlık	(var70)
	sosyal faaliyetler	(var71)
	diğer	(var72)

13. Çevrenizde değişiklikler oluyor mu? Bunda sizin payınız var mı? (var73)

[ ] Evet [ ] Var [ ] Yok / [ ] Hayır [ ] Bilmiyorum

14. Bu çevre ile ilgili şikayetlerinizi/önerilerinizi iletebileceğiniz kimse var mı? (var74)

[ ] Var [ ] Yok [ ] Bilmiyorum

15. Konutunuzla ilgili şikayetlerinizi/ önerilerinizi iletebileceğiniz kimse var mı? (var75)

☐ Var ☐ Yok ☐ Bilmiyorum

16. Bu çevre tasarlanırken size danışıldı mı? (var76)

☐ Evet ☐ Hayır

17. Konutununuzda eklenti yapıyor musunuz? (var77)

☐ Evet ☐ Hayır.Gerek duymuyorum ☐ Hayır.İzin yok

18. Konutununuzda fonksiyonel değişiklikler yapıyor musunuz? (var78)

☐ Evet ☐ Hayır.Gerek duymuyorum ☐ Hayır.İzin yok

19. Bu çevrenin sizin ihtiyaçlarınıza uymayan tarafları var mı? Eksikliğini duyduğunuz şeyler var mı? Neden? (var79)

APPENDIX B

KEY OF THE QUESTIONNAIRE

1.1. Cinsiyet (var1)

0	Kadın	1	Erkek

2. Yaş (var2)

0	0-14
1	15-25
2	26-55
3	56+

3. En son mezun olduğunuz okul (var3)

0	ilkokul
1	ortaokul
2	lise ve dengi
3	üniversite

4. Çalışıyor musunuz? (var4)

Hayır		Evet	
20	evhanımı	10	serbest
21	emekli	11	memur
22	öğrenci	12	işçi
23	diğer	13	diğer

5. Ailenin aylık geliri (var5)

0	-10 000 000 TL
1	10 000 000-30 000 000 TL
2	30 000 000-50 000 000 TL
3	50 000 000- TL

6. Ailenizde kaç kişi var? (var6)

1	1 kişi
2	2
3	3
4	4
5	5
6	6

7. Özel aracınız var mı? (var7)

0	Hayır	1	Evet	Kaç tane?

8. Oturduğunuz ev (var8)

0	sizin	1	kira	2	lojman	3	diğer

9. Daha önce nerede oturuyordunuz? (var9)

0	kent merkezinde
1	kentin dış mahallelerinde/banliyö
2	başka bir kentte

II. 1. Ne kadar süredir burada oturuyorsunuz ? (var10)

0	0-1
1	1-3
2	3-5
3	>5

2. Oturduğunuz çevrenin düzenlenişinden memnun musunuz?

(var11)

0	Evet	1	Kısmen	1	Hayır

3.Hangi alanları daha çok kullanıyorsunuz?En çok kullandığınız ilk üç alanı işaretleyiniz.

(1st: var12, 2nd:var13,3rd: var14)

0	ön bahçenizi
1	arka bahçenizi
2	sokağınızı
3	meydanınızı
4	otoparkınızı
5	çocuk bahçelerini
6	spor alanlarını
7	alışveriş merkezini
8	pazar yerini
12	büfeleri
10	camii
11	diğer

4. Zamanınızın ne kadarını bu çevrede geçiriyorsunuz? (var15)

0	hergün tüm gün
1	hafta içi tüm gün
2	hafta içi akşamları ve hafta sonu
3	diğer

5. Burada geçirdiğiniz vakitlerde neler yapıyorsunuz? (var15)

01	evde oturuyorum
01	arkadaşlarımı ziyaret ediyorum
02	bahçe ile ilgileniyorum
10	bisiklete biniyorum
10	spor yapıyorum
10	yürüyüşe çıkıyorum
10	parka gidiyorum
11	kahvehaneye gidiyorum
11	küp, dernek, vs. gidiyorum
12	alışverişe gidiyorum
20	diğer

01	family based activities
02	private openspace
10	public open space
11	public interior
12	daily routine-necessity
20	others

6. Oturduğunuz çevrede aşağıdakilerden hangileri var? Kullanıyor musunuz? Başka Kimler Kullanıyor? Neresi; nasıl bir yer? Kısaca tarif eder misiniz?

	varlığı		
		yok	var
ön bahçeniz	var17	0	1
arka bahçeniz	var20	0	1
sokağınız	var23	0	1
meydanınız	var26	0	1
spor alanınız	var29	0	1
otoparkınız	var32	0	1
çocuk bahçeleriniz	var35	0	1
alışveriş merkeziniz	var38	0	1
pazar yeriniz	var41	0	1
caminiz	var44	0	1

	tanımı							
		Sınır	Giriş	Sembol	Yön	Kullanım	İsim	Diğer
ön bahçeniz	var18	0	1	2	3	4	5	6
arka bahçeniz	var21	0	1	2	3	4	5	6
sokağınız	var24	0	1	2	3	4	5	6
meydanınız	var27	0	1	2	3	4	5	6
spor alanınız	var30	0	1	2	3	4	5	6
otoparkınız	var33	0	1	2	3	4	5	6
çocuk bahçeleriniz	var36	0	1	2	3	4	5	6
alışveriş merkeziniz	var39	0	1	2	3	4	5	6
pazar yeriniz	var42	0	1	2	3	4	5	6
caminiz	var45	0	1	2	3	4	5	6

	kullanımı				
		mahrem	kamusal	yarı mahrem	kullanılmıyor
ön bahçeniz	var19	0	1	2	3
arka bahçeniz	var22	0	1	2	3
sokağınız	var25	0	1	2	3
meydanınız	var28	0	1	2	3
spor alanınız	var31	0	1	2	3
otoparkınız	var34	0	1	2	3
çocuk bahçeleriniz	var37	0	1	2	3
alışveriş merkeziniz	var40	0	1	2	3
pazar yeriniz	var43	0	1	2	3
caminiz	var46	0	1	2	3

7. Oturduğunuz çevreyi değerlendirmeniz gerekise...

		1	2	3	4	5	
çeşitli/değişik	var47						monoton
yönlendirici	var48						kargaşık
açık alanlar yeterli	var49						yetersiz
tenha	var50						kalabalık
güvenli	var51						tehlikeli
iyi aydınlatılmış	var52						kötü aydınlatılmış
sosyal ilişkilere imkan veriyor	var53						sosyal ilişkilere imkan vermiyor
değişebilir	var54						değişmez
gelişebilir	var55						gelişmez
canlı	var56						sıkıcı
güzel	var57						çirkin
düzenli	var58						karışık

8. Evden çıkıp alışveriş merkezine giderken nerelerden geçiyorsunuz? (var59)

0	kademelemmemiş
1	kademelenmiş

9. Bu çevredeki işlevlerin düzenlenişinden memnun musunuz? (var60)

0	Evet	1	Kısmen	2	Hayır

10. Her türlü ihtiyacınızı bu çevrede karşılayabiliyor musunuz? (var61)

0	Evet	1	Kısmen	2	Hayır

11. Hayır ya da kısmen ise ... Çevrenizde uzmanlaşmış hizmetlerin eksikliğini duyuyor musunuz? (var62)

0	Evet	1	Hayır

12. Ne tür ihtiyaçlarınızı oturduğunuz çevrede karşılayabiliyorsunuz?

		Nerede			
		yok 0	var 1	spontane 10	tasarlanmış 11
var63	gündelik alışveriş				
var64	toptan alışveriş				
var65	kültür				
var66	eğlence				
var67	dinlenme				
var68	spor				
var69	eğitim				
var70	sağlık				
var71	sosyal faaliyetler				
var72	diğer				

13. Çevrenizde değişiklikler oluyor mu? Bunda sizin payınız var mı? (var73)

	Evet	11	Var	12	Yok
1	Hayır				
2	Bilmiyorum				

14. Bu çevre ile ilgili şikayetlerinizi/önerilerinizi iletebileceğiniz kimse var mı? (var74)

0	Var	1	Yok	2	Bilmiyorum

15. Konutunuzla ilgili şikayetlerinizi/ önerilerinizi iletebileceğiniz kimse var mı? (var75)

[0] Var [1] Yok [2] Bilmiyorum

16. Bu çevre tasarlanırken size danışıldı mı? (var76)

[0] Evet [1] Hayır

17. Konutununuzda eklenti yapıyor musunuz? (var 77)

[0] Evet [1] Hayır.Gerek duymuyorum [2] Hayır.İzin yok

18. Konutununuzda fonksiyonel değişiklik yapıyor musunuz? (var 78)

[0] Evet [1] Hayır.Gerek duymuyorum [2] Hayır.İzin yok

19. Bu çevrenin sizin ihtiyaçlarınıza uymayan tarafları var mı? Eksikliğini duyduğunuz şeyler var mı? Neden? (var79)

APPENDIX C

CHARACTERISTICS OF SAMPLE GROUP

Table C.1 sex

VAR1 sex		
Value Label	Value	Valid Percent
female	0	60.0
male	1	40.0
Total		100.0

Table C.2 age

VAR2 age		
Value Label	Value	Valid Percent
15-25 years old	1	31.7
26-55 years old	2	65.0
56+ years old	3	3.3

Table C.3 education

VAR3 education		
Value Label	Value	Valid Percent
primary	0	8.6
secondary	1	1.7
high-school	2	51.7
university	3	37.9
Total		100.0

Table C.4 occupation

VAR4 occupation		
Value Label	Value	Valid Percent
entrepreneur	10	13.3
employee	11	25.0
blue-collar	12	1.7
housewife	20	33.3
student	22	16.7
Total		100.0

Table C.5 income

VAR5 income		
Value Label	Value	Valid Percent
10M-30M	1	33.3
30M-50M	2	48.3
more than 50M	3	18.3
Total		100.0
Mean 1.850	Median 2.000	Mode 2.000

Table C.6 family size

VAR6 family size		
Value Label	Value	Valid Percent
1	1	1.7
2	2	28.3
3	3	33.3
4	4	25.0
5	5	8.3
6	6	3.3
Total		100.0
Mean 3.200	Median 3.000	Mode 3.000

Table C.7 car ownership

VAR7 car ownership		
Value Label	Value	Valid Percent
no	0	43.3
yes	1	56.7
Total		100.0

Table C.8 Home ownership

VAR8 home ownership		
Value Label	Value	Valid Percent
owned	0	33.3
rented	1	53.3
lodgment	2	13.3
Total		100.0

APPENDIX D

CROSS-TABULATIONS

VAR11 satisfaction by design by VAR47 variety

VAR11	Count / Exp Val / Col Pct	VAR47 1 the most	2 more	3 medium	4 low/less	5 the lowest/the l	Row Total
0 yes.good		9	1	5	2	9	26
		6.1	1.3	4.8	1.7	12.1	43.3%
		64.3%	33.3%	45.5%	50.0%	32.1%	
1 medium		5	2	6	1	12	26
		6.1	1.3	4.8	1.7	12.1	43.3%
		35.7%	66.7%	54.5%	25.0%	42.9%	
2 no.bad		0	0	0	1	7	8
		1.9	.4	1.5	.5	3.7	13.3%
		.0%	.0%	.0%	25.0%	25.0%	
Column Total		14 23.3%	3 5.0%	11 18.3%	4 6.7%	28 46.7%	60 100.0%

Chi-Square	Value	DF	Significance
Pearson	10.54446	8	.22887
Likelihood Ratio	13.49110	8	.09603
Mantel-Haenszel test for linear association	6.60324	1	.01018

Minimum Expected Frequency - .400
Cells with Expected Frequency < 5 - 11 OF 15 (73.3%)

Number of Missing Observations: 0

VAR11 satisfaction by design by VAR48 legibility

VAR11	Count / Exp Val / Col Pct	VAR48 1" the most more	2" medium	3"	4" low/less	5" the lowest/the l	Row Total
0		18	0	3	2	3	26
yes.good		17.0	.9	5.4	.9	1.8	44.8%
		47.4%	.0%	25.0%	100.0%	75.0%	
1		17	2	5	0	1	25
medium		16.4	.9	5.2	.9	1.7	43.1%
		44.7%	100.0%	41.7%	.0%	25.0%	
2		3	0	4	0	0	7
no.bad		4.6	.2	1.4	.2	.5	12.1%
		7.9%	.0%	33.3%	.0%	.0%	
Column Total		38 65.5%	2 3.4%	12 20.7%	2 3.4%	4 6.9%	58 100.0%

Chi-Square	Value	DF	Significance
Pearson	12.88166	8	.11599
Likelihood Ratio	13.56157	8	.09393
Mantel-Haenszel test for linear association	.00176	1	.96658

Minimum Expected Frequency - .241
Cells with Expected Frequency < 5 - 11 OF 15 (73.3%)

Number of Missing Observations: 2

VAR11 satisfaction by design by VAR49 adequicy of open spaces

VAR11	Count / Exp Val / Col Pct	VAR49 1 the most	2 more	3 medium	4 low/less	5 the lowest/the l	Row Total
0 yes.good		24	1	0	1	0	26
		22.0	.9	.4	.4	2.2	44.1%
		48.0%	50.0%	.0%	100.0%	.0%	
1 medium		19	1	1	0	4	25
		21.2	.8	.4	.4	2.1	42.4%
		38.0%	50.0%	100.0%	.0%	80.0%	
2 no.bad		7	0	0	0	1	8
		6.8	.3	.1	.1	.7	13.6%
		14.0%	.0%	.0%	.0%	20.0%	
Column Total		50 84.7%	2 3.4%	1 1.7%	1 1.7%	5 8.5%	59 100.0%

Chi-Square	Value	DF	Significance
Pearson	7.37908	8	.49634
Likelihood Ratio	10.21264	8	.25042
Mantel-Haenszel test for linear association	1.67036	1	.19621

Minimum Expected Frequency - .136
Cells with Expected Frequency < 5 - 12 OF 15 (80.0%)

Number of Missing Observations: 1

VAR11 satisfaction by design
by VAR50 satisfaction by the density of built str

VAR11	Count / Exp Val / Col Pct	VAR50 1 the most	2 more	3 medium	5 the lowest/the 1	Row Total
0 yes.good		22	3	0	1	26
		19.5	3.5	1.7	1.3	43.3%
		48.9%	37.5%	.0%	33.3%	
1 medium		15	5	4	2	26
		19.5	3.5	1.7	1.3	43.3%
		33.3%	62.5%	100.0%	66.7%	
2 no.bad		8	0	0	0	8
		6.0	1.1	.5	.4	13.3%
		17.8%	.0%	.0%	.0%	
Column Total		45 75.0%	8 13.3%	4 6.7%	3 5.0%	60 100.0%

Chi-Square	Value	DF	Significance
Pearson	9.91026	6	.12848
Likelihood Ratio	12.72296	6	.04765
Mantel-Haenszel test for linear association	.06861	1	.79337

Minimum Expected Frequency - .400
Cells with Expected Frequency < 5 - 9 OF 12 (75.0%)

Number of Missing Observations: 0

VAR11 satisfaction by design by VAR57 satisfaction of aesthetics needs

VAR11	Count / Exp Val / Col Pct	VAR57 1 the most	2 more	3 medium	4 low/less	5 the lowest/the l	Row Total
yes.good	0	23	0	3	0	0	26
		15.6	3.9	5.6	.4	.4	43.3%
		63.9%	.0%	23.1%	.0%	.0%	
medium	1	11	8	6	1	0	26
		15.6	3.9	5.6	.4	.4	43.3%
		30.6%	88.9%	46.2%	100.0%	.0%	
no.bad	2	2	1	4	0	1	8
		4.8	1.2	1.7	.1	.1	13.3%
		5.6%	11.1%	30.8%	.0%	100.0%	
	Column Total	36 60.0%	9 15.0%	13 21.7%	1 1.7%	1 1.7%	60 100.0%

Chi-Square	Value	DF	Significance
Pearson	26.77022	8	.00077
Likelihood Ratio	27.16938	8	.00066
Mantel-Haenszel test for linear association	14.00173	1	.00018

Minimum Expected Frequency - .133
Cells with Expected Frequency < 5 - 11 OF 15 (73.3%)

Number of Missing Observations: 0

VAR11 satisfaction by design by VAR58 satisfaction of cognition need

VAR11	Count / Exp Val / Col Pct	VAR58 the most more	1	medium 2	3	low/less 4	Row Total
0 yes.good		24	1	0	1		26
		20.4	3.0	2.2	.4		43.3%
		51.1%	14.3%	.0%	100.0%		
1 medium		19	4	3	0		26
		20.4	3.0	2.2	.4		43.3%
		40.4%	57.1%	60.0%	.0%		
2 no.bad		4	2	2	0		8
		6.3	.9	.7	.1		13.3%
		8.5%	28.6%	40.0%	.0%		
Column Total		47 78.3%	7 11.7%	5 8.3%	1 1.7%		60 100.0%

Chi-Square	Value	DF	Significance
Pearson	10.91139	6	.09115
Likelihood Ratio	12.71007	6	.04788
Mantel-Haenszel test for linear association	4.50095	1	.03388

Minimum Expected Frequency - .133
Cells with Expected Frequency < 5 - 9 OF 12 (75.0%)

Number of Missing Observations: 0

VAR11 satisfaction by design by VAR59 hiearachy between spaces

VAR11	Count / Exp Val / Col Pct	VAR59 not hiea rachical 0	VAR59 hierachi al 1	Row Total
yes.good	0	14	12	26
		16.3	9.7	44.1%
		37.8%	54.5%	
medium	1	19	7	26
		16.3	9.7	44.1%
		51.4%	31.8%	
no.bad	2	4	3	7
		4.4	2.6	11.9%
		10.8%	13.6%	
	Column Total	37 62.7%	22 37.3%	59 100.0%

Chi-Square	Value	DF	Significance
Pearson	2.16130	2	.33937
Likelihood Ratio	2.19566	2	.33359
Mantel-Haenszel test for linear association	.57366	1	.44881

Minimum Expected Frequency - 2.610
Cells with Expected Frequency < 5 - 2 OF 6 (33.3%)

Number of Missing Observations: 1

VAR11 satisfaction by design by VAR10 time of living there

VAR11	Count / Exp Val / Col Pct	VAR10 0	VAR10 1	VAR10 2	VAR10 3	Row Total
yes.good	0	4	9	7	5	25
		3.4	10.2	9.3	2.1	42.4%
		50.0%	37.5%	31.8%	100.0%	
medium	1	3	10	13	0	26
		3.5	10.6	9.7	2.2	44.1%
		37.5%	41.7%	59.1%	.0%	
no.bad	2	1	5	2	0	8
		1.1	3.3	3.0	.7	13.6%
		12.5%	20.8%	9.1%	.0%	
Column Total		8 13.6%	24 40.7%	22 37.3%	5 8.5%	59 100.0%

Chi-Square	Value	DF	Significance
Pearson	10.12627	6	.11943
Likelihood Ratio	11.77219	6	.06725
Mantel-Haenszel test for linear association	1.32619	1	.24948

Minimum Expected Frequency - .678
Cells with Expected Frequency < 5 - 8 OF 12 (66.7%)

Number of Missing Observations: 1

VAR11 satisfaction by design by VAR8 house ownership

		VAR8			
	Count / Exp Val / Col Pct	owned	rented	lodgemen t	Row Total
		0	1	2	
VAR11					
	0	9	12	5	26
yes.good		8.7	13.9	3.5	43.3%
		45.0%	37.5%	62.5%	
	1	8	16	2	26
medium		8.7	13.9	3.5	43.3%
		40.0%	50.0%	25.0%	
	2	3	4	1	8
no.bad		2.7	4.3	1.1	13.3%
		15.0%	12.5%	12.5%	
	Column Total	20 33.3%	32 53.3%	8 13.3%	60 100.0%

Chi-Square	Value	DF	Significance
Pearson	2.00481	4	.73487
Likelihood Ratio	2.03149	4	.72997
Mantel-Haenszel test for linear association	.20629	1	.64969

Minimum Expected Frequency - 1.067
Cells with Expected Frequency < 5 - 5 OF 9 (55.6%)

Number of Missing Observations: 0

VAR11 satisfaction by design by VAR9 previous neighborhood

VAR11	Count / Exp Val / Col Pct	VAR9 0 city cen tre	1 outskirt s of the cities	2 other ci ties	Row Total
0 yes.good		17	3	6	26
		19.1	2.2	4.8	43.3%
		38.6%	60.0%	54.5%	
1 medium		21	2	3	26
		19.1	2.2	4.8	43.3%
		47.7%	40.0%	27.3%	
2 no.bad		6	0	2	8
		5.9	.7	1.5	13.3%
		13.6%	.0%	18.2%	
Column Total		44 73.3%	5 8.3%	11 18.3%	60 100.0%

Chi-Square	Value	DF	Significance
Pearson	2.59091	4	.62843
Likelihood Ratio	3.28143	4	.51188
Mantel-Haenszel test for linear association	.47081	1	.49262

Minimum Expected Frequency - .667
Cells with Expected Frequency < 5 - 6 OF 9 (66.7%)

Number of Missing Observations: 0

VAR11 satisfaction by design by VAR15 time spent there

VAR11	Count / Exp Val / Col Pct	VAR15 0 everyday -wholeda	1 weekdays -wholeda	2 evenings in week	3 others	Row Total
0 yes.good		13	2	11	0	26
		11.7	1.3	12.1	.9	43.3%
		48.1%	66.7%	39.3%	.0%	
1 medium		12	1	12	1	26
		11.7	1.3	12.1	.9	43.3%
		44.4%	33.3%	42.9%	50.0%	
2 no.bad		2	0	5	1	8
		3.6	.4	3.7	.3	13.3%
		7.4%	.0%	17.9%	50.0%	
Column Total		27 45.0%	3 5.0%	28 46.7%	2 3.3%	60 100.0%

Chi-Square	Value	DF	Significance
Pearson	5.15034	6	.52468
Likelihood Ratio	5.62279	6	.46674
Mantel-Haenszel test for linear association	2.38158	1	.12277

Minimum Expected Frequency - .267
Cells with Expected Frequency < 5 - 6 OF 12 (66.7%)

Number of Missing Observations: 0

VAR60 satisatisfaction by funcional organization by VAR48 legibility

VAR60	Count / Exp Val / Col Pct	VAR48 the most more 1"	2" medium	3"	4" low/less the lowest/the l	5"	Row Total
0 yes		22	1	5	1	1	30
		19.7	1.0	6.2	1.0	2.1	51.7%
		57.9%	50.0%	41.7%	50.0%	25.0%	
1 medium		13	1	5	1	2	22
		14.4	.8	4.6	.8	1.5	37.9%
		34.2%	50.0%	41.7%	50.0%	50.0%	
2 no		3	0	2	0	1	6
		3.9	.2	1.2	.2	.4	10.3%
		7.9%	.0%	16.7%	.0%	25.0%	
Column Total		38 65.5%	2 3.4%	12 20.7%	2 3.4%	4 6.9%	58 100.0%

Chi-Square	Value	DF	Significance
Pearson	3.48740	8	.90017
Likelihood Ratio	3.72289	8	.88122
Mantel-Haenszel test for linear association	2.30462	1	.12899

Minimum Expected Frequency - .207
Cells with Expected Frequency < 5 - 12 OF 15 (80.0%)

Number of Missing Observations: 2

VAR60 satisatisfaction by funcional organization by VAR53 satisfaction of the affiliation needs

VAR60	Count / Exp Val / Col Pct	VAR53 1 the most	2 more	3 medium	4 low/less	5 the lowest	Row Total
0 yes		9	4	11	2	4	30
		7.5	3.5	7.0	1.5	10.5	50.0%
		60.0%	57.1%	78.6%	66.7%	19.0%	
1 medium		5	3	3	1	11	23
		5.8	2.7	5.4	1.2	8.1	38.3%
		33.3%	42.9%	21.4%	33.3%	52.4%	
2 no		1	0	0	0	6	7
		1.8	.8	1.6	.4	2.5	11.7%
		6.7%	.0%	.0%	.0%	28.6%	
	Column Total	15 25.0%	7 11.7%	14 23.3%	3 5.0%	21 35.0%	60 100.0%

Chi-Square	Value	DF	Significance
Pearson	17.39243	8	.02627
Likelihood Ratio	19.72413	8	.01143
Mantel-Haenszel test for linear association	8.60103	1	.00336

Minimum Expected Frequency - .350
Cells with Expected Frequency < 5 - 9 OF 15 (60.0%)

Number of Missing Observations: 0

VAR60 satisatisfaction by funcional organizati
by VAR56 satisfaction of self actulization need

VAR60	Count / Exp Val / Col Pct	VAR56 1 the most more	2 medium	3	4 low/less	5 the lowest/the l	Row Total
0 yes		8	3	12	1	6	30
		7.0	2.5	10.5	.5	9.5	50.0%
		57.1%	60.0%	57.1%	100.0%	31.6%	
1 medium		5	2	8	0	8	23
		5.4	1.9	8.1	.4	7.3	38.3%
		35.7%	40.0%	38.1%	.0%	42.1%	
2 no		1	0	1	0	5	7
		1.6	.6	2.5	.1	2.2	11.7%
		7.1%	.0%	4.8%	.0%	26.3%	
Column Total		14 23.3%	5 8.3%	21 35.0%	1 1.7%	19 31.7%	60 100.0%

Chi-Square	Value	DF	Significance
Pearson	8.02806	8	.43073
Likelihood Ratio	8.53251	8	.38325
Mantel-Haenszel test for linear association	4.04807	1	.04422

Minimum Expected Frequency - .117
Cells with Expected Frequency < 5 - 9 OF 15 (60.0%)

Number of Missing Observations: 0

VAR60 satisatisfaction by funcional organization by VAR58 satisfaction of cognition need

VAR58 Page 1 of 1

VAR60	Count / Exp Val / Col Pct	1 the most	2 more	3 medium	4 low/less	Row Total
0 yes		26	2	1	1	30
		23.5	3.5	2.5	.5	50.0%
		55.3%	28.6%	20.0%	100.0%	
1 medium		17	3	3	0	23
		18.0	2.7	1.9	.4	38.3%
		36.2%	42.9%	60.0%	.0%	
2 no		4	2	1	0	7
		5.5	.8	.6	.1	11.7%
		8.5%	28.6%	20.0%	.0%	
Column Total		47 78.3%	7 11.7%	5 8.3%	1 1.7%	60 100.0%

Chi-Square	Value	DF	Significance
Pearson	5.92939	6	.43115
Likelihood Ratio	6.09219	6	.41294
Mantel-Haenszel test for linear association	1.55422	1	.21251

Minimum Expected Frequency - .117
Cells with Expected Frequency < 5 - 9 OF 12 (75.0%)

Number of Missing Observations: 0

VAR60 satisatisfaction by funcional organization by VAR8 house ownership

		VAR8			Page 1 of 1
	Count / Exp Val / Col Pct	owned	rented	lodgemen t	Row Total
		0	1	2	
VAR60					
	0	10	13	7	30
yes		10.0	16.0	4.0	50.0%
		50.0%	40.6%	87.5%	
	1	9	14	0	23
medium		7.7	12.3	3.1	38.3%
		45.0%	43.8%	.0%	
	2	1	5	1	7
no		2.3	3.7	.9	11.7%
		5.0%	15.6%	12.5%	
	Column Total	20 33.3%	32 53.3%	8 13.3%	60 100.0%

Chi-Square	Value	DF	Significance
Pearson	7.55241	4	.10942
Likelihood Ratio	10.38773	4	.03438
Mantel-Haenszel test for linear association	.20934	1	.64728

Minimum Expected Frequency - .933
Cells with Expected Frequency < 5 - 5 OF 9 (55.6%)

Number of Missing Observations: 0

VAR60 satisatisfaction by funcional organization by VAR9 previous neighborhood

		VAR9			Page 1 of 1
	Count / Exp Val / Col Pct	city cen tre	outskirt s of the	other ci ties	Row Total
		0	1	2	
VAR60					
0 yes		21	3	6	30
		22.0	2.5	5.5	50.0%
		47.7%	60.0%	54.5%	
1 medium		19	2	2	23
		16.9	1.9	4.2	38.3%
		43.2%	40.0%	18.2%	
2 no		4	0	3	7
		5.1	.6	1.3	11.7%
		9.1%	.0%	27.3%	
	Column Total	44 73.3%	5 8.3%	11 18.3%	60 100.0%

Chi-Square	Value	DF	Significance
Pearson	4.75951	4	.31287
Likelihood Ratio	4.99588	4	.28772
Mantel-Haenszel test for linear association	.10354	1	.74763

Minimum Expected Frequency - .583
Cells with Expected Frequency < 5 - 5 OF 9 (55.6%)

Number of Missing Observations: 0

VAR60 satisatisfaction by funcional organization by VAR10 time of living there

		VAR10				Page 1 of 1
	Count / Exp Val / Col Pct	0-1	1-3	3-5	>5	Row
		0"	1"	2"	3"	Total
VAR60						
0 yes		3	9	14	4	30
		4.1	12.2	11.2	2.5	50.8%
		37.5%	37.5%	63.6%	80.0%	
1 medium		2	13	6	1	22
		3.0	8.9	8.2	1.9	37.3%
		25.0%	54.2%	27.3%	20.0%	
2 no		3	2	2	0	7
		.9	2.8	2.6	.6	11.9%
		37.5%	8.3%	9.1%	.0%	
	Column Total	8 13.6%	24 40.7%	22 37.3%	5 8.5%	59 100.0%

Chi-Square	Value	DF	Significance
Pearson	11.23409	6	.08141
Likelihood Ratio	10.13598	6	.11904
Mantel-Haenszel test for linear association	5.82547	1	.01580

Minimum Expected Frequency .593
Cells with Expected Frequency < 5 - 8 OF 12 (66.7%)

Number of Missing Observations: 1

VAR60 satisatisfaction by funcional organizati by VAR15 time spent there

VAR60	Count / Exp Val / Col Pct	VAR15 0 everyday -wholeda	1 weekdays -wholeda	2 evenings in week	3 others	Row Total
0 yes		16	1	12	1	30
		13.5	1.5	14.0	1.0	50.0%
		59.3%	33.3%	42.9%	50.0%	
1 medium		9	2	12	0	23
		10.4	1.2	10.7	.8	38.3%
		33.3%	66.7%	42.9%	.0%	
2 no		2	0	4	1	7
		3.2	.4	3.3	.2	11.7%
		7.4%	.0%	14.3%	50.0%	
Column Total		27 45.0%	3 5.0%	28 46.7%	2 3.3%	60 100.0%

Chi-Square	Value	DF	Significance
Pearson	6.08936	6	.41326
Likelihood Ratio	6.01506	6	.42151
Mantel-Haenszel test for linear association	2.09646	1	.14764

Minimum Expected Frequency - .233
Cells with Expected Frequency < 5 - 8 OF 12 (66.7%)

Number of Missing Observations: 0

APPENDIX E

DIFFERENCES IN EVALUATIONS ACCORDING TO HOUSING TYPES

Table E.1 spaces used in the first order with respect to housing types (VAR12)

VAR12 spaces used in the first order		apartment houses	point blocks	duplex row houses
Value Label	Value	Valid Percent	Valid Percent	Valid Percent
frontyard	0	24.1	8.3	16.7
backyard	1	6.9	4.2	16.7
street	2	3.4	4.2	
car park	4	6.9	12.5	50.0
playgrounds	5	17.2	16.7	
sports areas			4.2	16.7
shopping centre	7	24.1	45.8	
market place	8	6.9	4.2	
others	11	3.4		
kiosks	12	6.9		
Total		100.0	100.0	100.0

Table E.2 spaces used in the second order with respect to the housing types (VAR13)

VAR13 spaces used in the second order		apartment houses	point blocks	duplex row houses
Value Label	Value	Valid Percent	Valid Percent	Valid Percent
frontyard	0	7.1	4.3	
backyard	1	7.1		83.3
street	2	3.6		
car park	4	7.1	13.0	
play grounds	5	14.3	13.0	
sports areas	6	7.1	8.7	
shopping centre	7	17.9	21.7	16.7
market place	8	21.4	8.7	
mosque	10	3.6	4.3	
kiosks	12	10.7	26.1	
Total		100.0	100.0	100.0

Table E.3 spaces used in the third order with respect to housing types (VAR14)

VAR14 spaces used in the third order		apartment houses	point blocks	duplex row houses
Value Label	Value	Valid Percent	Valid Percent	Valid Percent
fronyard	0	4.0		
street	2	4.0	8.7	
car park	4	8.0	13.0	16.7
playgrounds	5	8.0	13.0	
sports areas	6	16.0	21.7	16.7
shopping centre	7	44.0	17.4	33.3
market place	8	12.0	8.7	16.7
mosque			4.3	
kiosks	12	4.0	13.0	16.7
Total		100.0	100.0	100.0

Table E.4 Spare time activities with respect to housing types (VAR16)

VAR16 spare time activities		apartment houses	point blocks	duplex row houses
Value Label	Value	Valid Percent	Valid Percent	Valid Percent
family-based activities	1	70.0	41.7	50.0
private open space	2		4.2	33.3
public open space	10	26.7	54.2	16.7
others	20	3.3		
	Total	100.0	100.0	100.0

Table E.5 Definition of square with respect to different housing types (VAR27)

VAR27 definition of square		point blocks		apartment houses		duplex row houses	
value label	value	freq.	valid percent	freq.	valid percent	freq.	valid percent
direction	3			1	10.0		
usage	4			6	60.0		
others	6			3	30.0	1	100.0
Total		24	100.0	30	100.0	6	100.0